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5494 Remote Control Unit

Planning Guide

Release 3.2

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NOTICES Notices

Note

Before using this information and the product it supports, be sure to read the general information under "[Notices](#)" in topic LEGEND.

5494 Microcode

In this document, the term **code** refers to microcode.

EDITION Edition Notice

| **Sixth Edition (October 1996)**

| This edition applies to Release 3.2 of the IBM 5494 Remote Control
| Unit and to all subsequent releases and modifications until otherwise
| indicated in new editions.

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LEGEND.1 Safety Notices

Safety notices are printed throughout this manual. **DANGER** notices warn you of conditions or procedures that can result in death or severe personal injury. **CAUTION** notices warn you of conditions or procedures that can cause personal injury that is neither lethal nor extremely hazardous. **Attention** notices warn you of conditions and procedures that can cause damage to machines, equipment, or programs.

Subtopics:

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LEGEND.1.1 United Kingdom

Warning: This IBM product is made to high safety standards. It complies inherently with telecommunications safety standards. It is not designed to provide protection from excessive voltages appearing externally at its interfaces. Therefore, when this product is connected to a public telecommunications network via any other equipment, and you connect to this product items not supplied by IBM United Kingdom Ltd., you must comply with mandatory telecommunications safety requirements.

You may do this either by choosing products which also are approved as complying to BS6301 or British Telecom Technical Guide No. 26, or by the use of approved safety barriers. Consult the local office of your public telecommunications operator, for advice and permission to make the connections.

LEGEND.1.2 World Trade Safety Information

Some countries require the safety information contained in publications to be presented in their national languages. See [Appendix A, "Safety Notices"](#) for the translations of the **DANGER** and **CAUTION** notices in this manual.

Before using an English-language publication to set up, install, or operate this IBM product, you first should become familiar with the related safety information. Refer to [Appendix A, "Safety Notices"](#) any time you do not clearly understand any safety information in this manual.

LEGEND.1.3 Translated Safety Notices

U.S. English	You can find translated safety notices in Appendix A, "Safety Notices."
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Belgian Dutch	U vindt de vertaalde veiligheidsvoorschriften in Appendix A, "Safety Notices."
Brazilian Portuguese	Você pode achar as notas de segurança traduzidas no apêndice A, "Safety Notices."
Canadian French	La traduction des consignes de sécurité se trouve à l'Annexe A, "Consignes de sécurité."
Chinese	
Danish	De danske sikkerhedsforskrifter findes i Appendix A, "Sikkerhedsforskrifter" (Safety Notices).
Finnish	Suomennetut turvaojeet ovat liitteessä A, "Safety Notices."
French	Vous trouverez les notices de sécurité traduites dans l'annexe A, "Notices de Sécurité."
German	Die Übersetzung der Sicherheitshinweise ist in Anhang A, "Sicherheitshinweise," enthalten.
Italian	La traduzione delle informazioni di sicurezza è nell'Appendice A, "Informazioni di sicurezza."
Japanese	付録A、「安全に関する注意」に翻訳された安全に関する但し書きが記載されています。
Korean	번역된 안전 정보를 부록 A의 "안전 정보"에서 찾을 수 있습니다.
Norwegian	Du finner oversatt sikkerhetsinformasjon i Tillegg A, "Sikkerhetsinformasjon."
Polish	Polski Przetłumaczone uwagi dotyczące bezpiecznej eksploatacji można znaleźć w Dodatku A, "Zasady bezpiecznej eksploatacji".
Portuguese	Localize os avisos de segurança traduzidos no Apêndice A, "Avisos de Segurança."
Spanish	Podrá hallar los avisos de seguridad traducidos en el Apéndice A, "Avisos de Seguridad."
Swedish	Svenska varningstexter finns i avsnittet "Appendix A, Safety Notices."

LEGEND.2 Trademarks

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Application System/400	NetView	PS/55
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AS/400	Operating System/400	RS/6000
AT	OS/2	S/370
Extended Services	OS/400	S/390
Extended Services for OS/2	Personal Computer AT	System/370
IBM	Personal System/2	VTAM
Impactwriter	Personal System/55	

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PREFACE About This Manual

This manual explains how to plan the installation of your IBM^(*) 5494 Remote Control Unit. The manual contains information about cabling, planning your physical site, and ordering system components and network facilities. In addition, this manual contains general information about data communication networks. [Topic 5](#) and [Topic 6](#) provide information that helps you determine which worksheets to complete. Blank worksheets, step-by-step instructions for completing the worksheets, and appropriate reference material are included in this manual. After you complete the worksheets, give them to the person who configures the 5494. This person needs your planning information to complete the installation and configuration process.

Subtopics:

- [PREFACE.1 Who Should Read This Manual](#)
 - [PREFACE.2 How This Manual Is Organized](#)
 - [PREFACE.3 Related Publications](#)
-

PREFACE.1 Who Should Read This Manual

[Topic 1](#) is for anyone seeking general information about the 5494 Remote Control Unit.

| [Topic 2](#) through [Topic 8](#) are for the person in charge of planning the remote installation. These tasks require some knowledge of data communication and network planning.

PREFACE.2 How This Manual Is Organized

[Topic 1, Introduction to the 5494 Remote Control Unit](#)

This topic provides an overview of the 5494. It describes the components of a data communication system and lists supported devices.

[Topic 2, Preparing Your Site](#)

This topic describes the operating environment required for the 5494. A planning checklist is provided to help organize the installation process.

[Topic 3, Planning for Cables](#)

This topic describes frequently used methods of cabling. It also contains cable ordering information.

[Topic 4, Planning Your Communication Network](#)

This topic contains information for ordering system components and network facilities.

[Topic 5, Preparing the Configuration Worksheets](#)

This topic provides step-by-step instructions for completing the configuration worksheets.

[Topic 6, Preparing the Network Link Establishment Worksheet](#)

This topic provides step-by-step instructions for completing the Network Link Establishment Worksheet. The Network Link Establishment Worksheet contains instructions for connecting the 5494 to the Application System/400 (AS/400) system.

Topic 7, Planning for Concurrent Host Attachment

This topic contains information about concurrent host attachment and how to use it in your network.

| **Topic 8, Planning for a Frame Relay Token-Ring (FR-TR) Bridge**

| This topic contains overview information about frame relay token-ring
| bridging.

Appendix A, Safety Notices

This appendix provides translations of all of the safety notices used in this manual.

Appendix B, Configuring the AS/400 for Communication with the 5494

This appendix explains the steps you perform to configure the 5494 on the AS/400 system.

Appendix C, System Configuration Examples

This appendix provides sample system parameters, diagrams, and worksheets that illustrate how to connect the 5494 to the AS/400 system.

Appendix D, Sample Completed Worksheets

This appendix contains completed worksheets for Network Link Establishment and Keyboard Translation that you can refer to as examples while filling out your own worksheets.

| **Appendix E, Worksheet Master Copies Index**

| This appendix contains a reference to the location of blank worksheets
| that you can copy and use while planning your data communication network.

This manual also contains a glossary of terms and abbreviations and an index.

PREFACE.3 Related Publications

The following publications contain related information:

Subtopics:

- [PREFACE.3.1 5494 Library](#)
 - [PREFACE.3.2 Cabling](#)
 - [PREFACE.3.3 Application System/400 \(AS/400\)](#)
 - [PREFACE.3.4 Communication/Protocols](#)
 - [PREFACE.3.5 Local Area Networks \(LANs\)](#)
 - [PREFACE.3.6 Programmable Workstations](#)
 - [PREFACE.3.7 Systems Network Architecture \(SNA\)](#)
-

PREFACE.3.1 5494 Library

- *IBM 5494 Remote Control Unit User's Guide*, GA27-3960
 - *IBM 5494 Remote Control Unit Functions Reference*, SC30-3533
 - *IBM 5494 Remote Control Unit Maintenance Information*, SY27-0327
 - *IBM 5494 Remote Control Unit Problem Determination Guide Quick Reference*, GA27-3909
 - *IBM 5494 Remote Control Unit National Language Support for Arabic*, GA27-3910
 - *IBM 5494 Remote Control Unit National Language Support for Hebrew*, GA27-3911
-

PREFACE.3.2 Cabling

- *LAN Cabling System Planning and Installation Guide*, GA27-3361
 - *IBM Cabling System Problem Determination Guide for Twinaxial Applications*, GA21-9491
 - *IBM 5299 Terminal Multiconnector Model 3 Planning, Installation and Problem Analysis Guide*, GA27-3749
 - *Using the Cabling System with Communication Products*, GA27-3620
 - *Cabling System Optical Fiber Planning and Installation Guide*, GA27-3943
-

PREFACE.3.3 Application System/400 (AS/400)

- *AS/400 Communications: Configuration*, SC41-3401
- *AS/400 Local Area Network Support*, SC41-3404
- *AS/400 X.25 Network Support*, SC41-3405
- | *AS/400 Communications: Integrated Services Digital Network Guide*,
| SC41-0003

- *AS/400 Communications: Local Area Network Guide*, SC41-0004
 - *AS/400 Communications: Management*, SC41-3406
 - *AS/400 Workstation Customization Programming*, SC41-3605
 - *AS/400 Programming: Performance Tools/400*, SC41-3340
 - *AS/400 Programming: Work Management*, SC41-3306
 - *AS/400 Remote Work Station Support*, SC41-3402
 - | *AS/400 Communication Definition Examples III*, GG24-4386
-

PREFACE.3.4 Communication/Protocols

- *Data Communications Concepts*, GC21-5169
 - *High-Speed Networking Technology: An Introductory Survey*, GG24-3816 (for frame relay information)
 - *Implementation of X.21 Interface, General Information Manual*, GA27-3287
 - *Synchronous Data Link Control Concepts*, GA27-3093
 - *The X.25 Interface for Attaching SNA Nodes to Packet-Switched Data Networks General Information Manual*, GA27-3345
 - *The X.25 1984/1988 Interface for Attaching SNA Nodes to Packet-Switched Data Networks General Information Manual*, GA27-3761
 - | *IBM AS/400 ISDN Connectivity*, GG24-3517
-

PREFACE.3.5 Local Area Networks (LANs)

- *IBM Local Area Network Administrator's Guide*, GA27-3748
- *IBM Local Area Network Concepts and Products*, GG24-3178
- *The Ethernet: A Local Area Network, Version 2.0*, November, 1982, XNSS-018211, Third Printing, 1985

- *IBM Multisegment LAN Design Guidelines*, GG24-3398
- *IBM Token-Ring Network Installation Guide*, GA27-3678
- *IBM Token-Ring Network Architecture Reference*, SC30-3374
- *IBM Token-Ring Network Guide to Small Networks*, SK2T-0300
- *IBM Token-Ring Network Introduction and Planning Guide*, GA27-3677
- *IEEE 802.3 Local Area Network Considerations*, GG22-9422
- *LAN Technical Reference: IEEE 802.2 and NetBIOS Application Program Interfaces*, SC30-3587
- *LAN Technical Reference: Ethernet Adapter Interface*, SC30-3661
- *LAN Technical Reference: Token-Ring Network Adapter Interface*, SC30-3588
- *IBM Token-Ring Network Problem Determination Guide*, SX27-3710
- *AS/400 Wireless LAN Products Family: Configuration Examples, Tips and Techniques*, SG24-4392

PREFACE.3.6 Programmable Workstations

- *IBM 5494 and OS/2 Extended Services: Connecting Remote User Groups with AS/400*, GG24-3828
- *IBM Operating System/2 Extended Edition System Administrator's Guide for Communications*, G01F-0302
- *IBM Operating System/2 Extended Edition Communications Manager*, Z360-2786
- *IBM Extended Services for Operating System/2 Information and Planning Guide*, G326-0161
- *AS/400 Connection Program/400 for UNIX Environment User's Guide*, SC41-0179
- *IBM Client Access/400 DOS Setup*, SC41-3556
- *IBM Client Access/400 OS/2 Setup*, SC41-3520

- *IBM PC Support/400: DOS Installation and Administration Guide*, SC41-0006
 - *IBM PC Support/400: OS/2 Installation and Administration Guide*, SC41-0007
 - *IBM Communications Manager/2 Workstation, Installation and Configuration Guide*, SC31-6174
-

PREFACE.3.7 Systems Network Architecture (SNA)

- *Systems Network Architecture Advanced Peer-to-Peer Networking Architecture Reference*, SC30-3422
 - *Systems Network Architecture Formats*, GA27-3136
 - *Systems Network Architecture LU 6.2 Reference: Peer Protocols*, SC31-6808
 - *Systems Network Architecture Technical Overview*, GC30-3073
 - *AS/400 Communications: Advanced Peer-to-Peer Networking Support*, SC41-3407
 - *AS/400 APPN with PS/2 APPN, 3174 APPN, 5394 and Subarea Networking*, GG24-3717
 - *S3/X and AS/400 APPN Nodes Using the SNA/LEN Subarea Network*, GG24-3288
-

I CHANGES Summary of Changes

| Technical changes or additions to the text and illustrations are indicated
| by a vertical line to the left of the change.

Subtopics:

- [CHANGES.1 Sixth Edition \(October 1996\)](#)
-

I CHANGES.1 Sixth Edition (October 1996)

| This manual supports the IBM 5494 Remote Control Unit Release 3.2.

| Where applicable, information has been added for:

- | Frame Relay Token-Ring (FR-TR) Bridge
 - | Utility Program support for DOS/V
 - | Nways Campus Manager LAN for AIX 2.0
 - | Wireless Communications
 - | ISDN (integrated services digital network)
 - | ASCII external device support
 - | Use of 5494 LAN adapter permanent (Universal) address
 - | Time and Date Synchronization with primary AS/400
 - | 5494 IPL using backup configuration from diskette
 - | LAN printer support
-

1.0 Topic 1. Introduction to the 5494 Remote Control Unit

This topic provides an overview of the IBM^(*) 5494 Remote Control Unit (*referred to as 5494 in this manual*), explains the components of a data communication system, and explains what you need to know if you want to replace an IBM 5394 Remote Control Unit with a 5494.

Subtopics:

- [1.1 5494 Remote Control Unit](#)
 - [1.2 Highlights of the 5494 Remote Control Unit](#)
 - [1.3 Data Communication System Configurations with the 5494](#)
 - [1.4 Equipment Required for a Data Communication System](#)
 - [1.5 Advanced Networking](#)
 - [1.6 Planning for Migration to the 5494 Remote Control Unit](#)
-

1.1 5494 Remote Control Unit

The 5494, shown in Figures 1 through 5, features a 3.5-inch diskette drive used to load code that handles communication, workstation management, and text editing functions. A 16-position liquid crystal display (LCD) and four light-emitting diode (LED) indicators combined

with a 21-key keypad on the operator panel provide an operator interface to the 5494. These controls are used to obtain status information and diagnose errors.

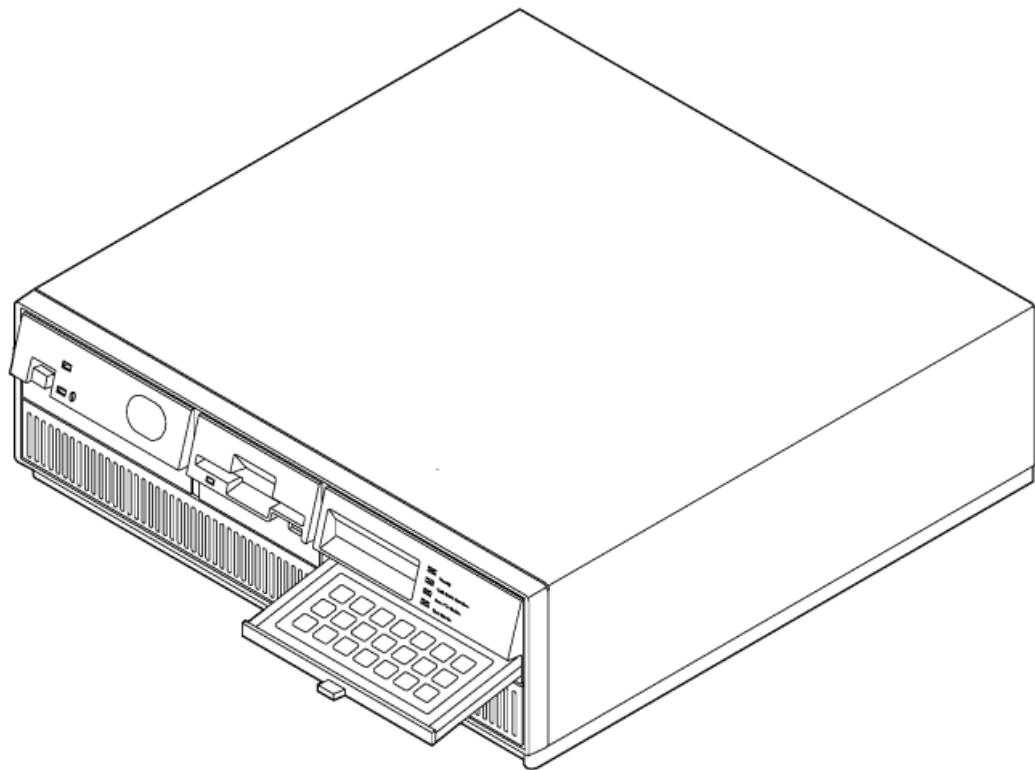


Figure 1. Front View of 5494

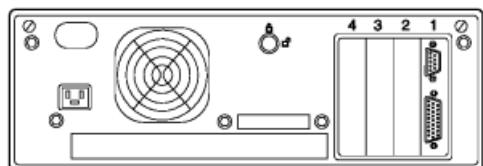


Figure 2. Back View of 5494

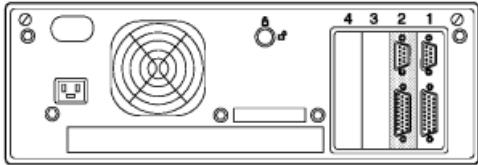


Figure 3. Back View of 5494 with Twinaxial Expansion Adapter in Slot 2

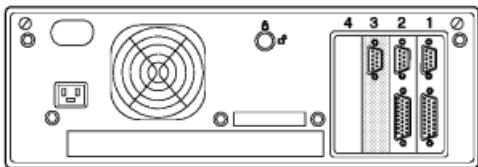


Figure 4. Back View of 5494 with 5494 Token-Ring Adapter in Slot 3

Note: The Token-Ring Adapter may look different from the one shown in [Figure 4](#).

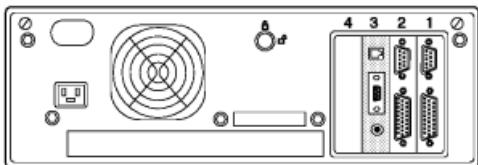


Figure 5. Back View of 5494 with 5494 Ethernet Adapter in Slot 3

1.2 Highlights of the 5494 Remote Control Unit

Subtopics:

- [1.2.1 Remote Workstation Attachment](#)
- [1.2.2 Local Processing for Nonprogrammable Workstations](#)
- [1.2.3 Support for Programmable Workstations](#)
- [1.2.4 Support for LAN-attached Printers](#)
- [1.2.5 Twinaxial Workstation Attachment](#)
- [1.2.6 Twinaxial Expansion Kit](#)
- [1.2.7 5250 Enhanced User Interface Support](#)
- [1.2.8 Pointer-Device \(Mouse\) Functions](#)

- [1.2.9 5250 Shared Addressing Device Support](#)
 - [1.2.10 5250 Fax and Image Support](#)
 - [1.2.11 5250 Video Delivery Support](#)
 - [1.2.12 Workstation Customization](#)
 - [1.2.13 Double-Byte Character Set Graphic Field Support](#)
 - [1.2.14 ASCII External Device Support](#)
 - [1.2.15 Communication Network Interface Options](#)
 - [1.2.16 Wide Area Network \(WAN\) Communication](#)
 - [1.2.17 Local Area Network \(LAN\) Communication \(Token Ring and Ethernet\)](#)
 - [1.2.18 Attachment to SNA Subarea Network](#)
 - [1.2.19 Frame Relay Token-Ring Bridge](#)
 - [1.2.20 Attachment to an Integrated Services Digital Network \(ISDN\)](#)
 - [1.2.21 Attachment to a Wireless Network](#)
 - [1.2.22 Logical Connection Continuous Retries](#)
 - [1.2.23 Flexible Configuration Options](#)
 - [1.2.24 Automatic Configuration on the AS/400](#)
 - [1.2.25 Permanent Storage of Configuration Information](#)
 - [1.2.26 Alternate AS/400 System Support](#)
 - [1.2.27 Concurrent Host Attachment](#)
 - [1.2.28 System Expandability](#)
 - [1.2.29 Code Maintenance and Upgrade](#)
 - [1.2.30 5494 Utility Program](#)
 - [1.2.31 5494 System Password](#)
 - [1.2.32 AS/400 Performance Monitor Support](#)
 - [1.2.33 Systems Network Architecture \(SNA\) Alert Support](#)
 - [1.2.34 Nways Campus Manager LAN for AIX 2.0 Support](#)
 - [1.2.35 5494 Vital Product Data Retrieval](#)
-

1.2.1 Remote Workstation Attachment

Twinaxial workstations located within 1524 m (5000 ft) of an AS/400 system can attach locally to a control unit contained within the AS/400 system. This local attachment allows centralized data entry, display, and printing, with all information being processed by the AS/400 system.

Many organizations, however, need to locate workstations further from the AS/400 system than local attachment allows. These organizations can use a remote control unit, such as the 5494, to control the operation of workstations located more than 1524 m (5000 ft) from the AS/400 system. This remote attachment allows users in different buildings, different cities, or even in different countries to share the resources of one AS/400 system. The 5494 manages information exchanges with the AS/400 system over a local area (LAN) or wide area (WAN) communication network.⁽¹⁾

(1) In this manual, the term "communication network" refers to the equipment and software required to transmit data signals between the AS/400 system and a remote site.

1.2.2 Local Processing for Nonprogrammable Workstations

A *nonprogrammable workstation* (NWS) is a workstation that is incapable of processing information on its own. Printers and display stations are examples of NWSs. A personal computer or Personal System/2^(*) (PS/2) computer running a 5250 workstation emulation program also functions as an NWS.

The 5494 acts as an editing controller for NWSs. The 5494 can process keystrokes and fields locally without communicating with the AS/400 system. This local processing can improve the response time for accepting and processing keystrokes and for providing feedback to the

operator when editing errors occur. When the entered information is ready for transmission to the AS/400 system, the 5494 manages the flow of this information over the communication network.

In supporting printers, the 5494 passes print data from the AS/400 system to the printer without processing the data.

1.2.3 Support for Programmable Workstations

A *programmable workstation* (PWS) is a workstation that can process information independently of the AS/400 system and can also exchange information with the AS/400 system or another system. A personal computer or PS/2 computer is an example of a PWS that can use the IBM PC Support/400 program to communicate with the AS/400 system.

The 5494 supports attachment of PWSs and manages the SNA LU 6.2 sessions established between the PWS and the AS/400 system over the communication network. The 5494 allows multiple PWSs to share one communication line with the AS/400 system.

| Note: See "[Frame Relay Token-Ring Bridge](#)" in topic [1.2.19](#) for information
| on support of non-SNA sessions.

Subtopics:

- [1.2.3.1 AS/400-Initiated Programmable Workstation Sessions](#)
-

1.2.3.1 AS/400-Initiated Programmable Workstation Sessions

The 5494 supports AS/400-initiated logical unit (LU) 6.2 sessions between the AS/400 system and a PWS attached to the 5494. The 5494 routes LU 6.2 BIND requests received from the host to the appropriate PWS and passes all session traffic through the 5494, just as with the PWS-initiated sessions. There are naming restrictions that must be followed for the PWS control point (CP) name and the PWS LU name in order to make the routing of AS/400-initiated BINDs possible. Refer to the *5494 Remote Control Unit User's Guide* for more information.

1.2.4 Support for LAN-attached Printers

| The 5494 supports attachment of printers such as the IBM 3130 or 3935 to
| the local area network and manages the SNA LU 6.2 sessions established
| between the printer and the AS/400 system over the communication network.
| The LAN printer must be configured for CALL IN mode. The 5494 handles
| LAN-attached printers similarly to LAN-attached PWSs.

1.2.5 Twinaxial Workstation Attachment

Each 5494 has a Twinaxial Workstation Attachment cable that has four twinaxial ports. The 5494 supports as many as 28 twinaxial workstations (workstations that support 5250 data stream communication are also called *5250 workstations*) with a maximum of seven workstations (NWS or PWS) attached to each port.

Each 5494 can have either one or two Twinaxial Workstation Attachment cables attached depending upon whether the Twinaxial Expansion Kit has been installed. This kit allows the 5494 to support as many as 56 twinaxial workstations with a maximum of eight ports and a maximum of seven workstations (NWS or PWS) attached to each port.

Although the cable connections for 5250 data stream communication are normally provided using twinaxial cable and connectors, other types of cable may be used, including the following cable types:

- IBM Cabling System (or equivalent)
- Telephone twisted-pair.

1.2.6 Twinaxial Expansion Kit

The Twinaxial Expansion Kit provides additional twinaxial ports by adding a second twinaxial adapter in the 5494 to support an additional 28 twinaxial workstations. This Twinaxial Expansion Adapter supports four additional twinaxial ports, for a total of 56 twinaxial devices.

| **Note:** OS/400 Version 2 Release 3 or later is required to support 56
| twinaxial devices.

The Twinaxial Expansion Kit is a feature which must be purchased separately.

1.2.7 5250 Enhanced User Interface Support

The user interface for NWSs attached to the 5494 provides the user with enhanced display features. These features are consistent with those of the graphical user interface (GUI) available on PWSs.

Some of the enhanced features for nonprogrammable workstations are:

- Pop-up window generation
- Placement of error messages inside windows
- Host application definition of selection fields such as menu bars, pull down menus, single- or multiple-choice selection fields and lists, and push buttons
- Pointer-device-accessible scroll bar fields.

1.2.8 Pointer-Device (Mouse) Functions

The 5494 provides mouse function support for displays with a mouse attached.

Subtopics:

- [1.2.8.1 Copy and Paste](#)
 - [1.2.8.2 Hot Spots](#)
 - [1.2.8.3 Mouse Data Stream Command](#)
-

1.2.8.1 Copy and Paste

Information can be marked on the screen and later pasted into input fields using the mouse.

1.2.8.2 Hot Spots

The 5494 provides a "hot spot" function for older applications. When the mouse cursor is positioned and the left mouse button pressed, the 5494 attempts to recognize the screen data under the mouse cursor and interpret it as a user desired action. It attempts to recognize function key definitions (for example F12=Cancel) and send the appropriate function key to the AS/400 system. It attempts to recognize menu items and send the item number and an Enter keystroke to the AS/400 system. It also recognizes -, +, MORE, and BOTTOM on the screen and sends the appropriate page up or page down request to the AS/400 system.

1.2.8.3 Mouse Data Stream Command

The 5494 processes a data stream command to provide mouse functions defined by the application program.

1.2.9 5250 Shared Addressing Device Support

The 5494 provides shared addressing support for 3489 displays. This allows the user to have one to four sessions on a single display, using only one port and station address.

The 5494 allows up to 120 total NWS sessions with the AS/400 system. One session is reserved for each possible address (28 or 56), and the remainder can be used as shared address sessions.

1.2.10 5250 Fax and Image Support

The 5494 provides support for fax and image on 3489 displays. AS/400 applications can send the 5494 data stream commands to control and display fax and image data.

1.2.11 5250 Video Delivery Support

The 5494 provides support for video delivery on 3489 displays. AS/400 applications can send the 5494 data stream commands to control and display video delivery data.

1.2.12 Workstation Customization

Workstation customization (WSC) support allows customization of:

- Nonprogrammable workstation keyboards
- ASCII printers attached to InfoWindow displays which provide this function.

It includes the following download functions:

Keyboard Translation Table (KTT)

A customized KTT can be created on the AS/400 system using the new AS/400 Workstation Customization Utility and downloaded to the 5494 for use on any NWS. The customized KTT allows customers to tailor the keyboard to their specific needs.

Printer Definition Table (PDT)

A customized PDT can be created on the AS/400 system using the AS/400 Workstation Customization Utility and downloaded to an InfoWindow display which supports this function. The customized PDT allows these displays to support the attachment of non-IBM ASCII printers.

For complete information on workstation customization, refer to *AS/400 Workstation Customization Programming*.

1.2.13 Double-Byte Character Set Graphic Field Support

Shift in/shift out (SI/SO) characters are required to shift between double-byte and single-byte character display. Double-byte character set (DBCS) graphic field support allows the SI/SO characters to be placed in the Extended Character Buffer on the 3477 display so that the SI/SO characters no longer occupy character positions on the screen.

| 1.2.14 ASCII External Device Support

| You can attach ASCII devices to the 5494 using the IBM 5308 ASCII to 5250 Connection. The protocol converter translates between ASCII and 5250 protocols so ASCII workstations (terminals or personal computers emulating terminals) can communicate with the AS/400 through the 5494. The IBM 5308 ASCII to 5250 Connection supports the following terminals and PCs emulating the following terminals:

- | IBM 3151 ASCII Display Terminal
- | IBM 3164 Color ASCII Terminal
- | DEC VT-100
- | DEC VT-220
- | Wyse WY50
- | Wyse WY60
- | TeleVideo 925
- | Data General DASHER D220

| The IBM 5308 ASCII to 5250 Connection connects to the following modems:

- | IBM 7857
- | IBM 7855
- | IBM 7852
- | IBM 5853

| When the PC workstation is connected to the host, the PC keyboard mapping is changed. Software is provided with the protocol converter so that the user can control the keyboard mapping. The user can operate the 5250 emulation software provided in any full screen virtual DOS environment under the following operating systems:

- | Operating System/2 (OS/2) Version 2.1 or later
- | Windows** Version 3.0 or later
- | Windows 95**
- | Windows NT**

| The 5250 emulation software functions with Hayes**-compatible PC modems that are attached internally, externally, or through a PCMCIA interface.

| The IBM 5308 ASCII to 5250 Connection supports two or seven incoming lines, depending on the model installed. It translates the incoming ASCII data stream to a 5250 datastream and sends it over the twinax connection through the 5494 to the AS/400. The reverse occurs when the AS/400 sends data to the connected ASCII device.

1.2.15 Communication Network Interface Options

The 5494 provides a communication port that supports a variety of cables for attaching the 5494 to a communication network for communicating with the AS/400 system. Depending on the cable used, the 5494 can attach to a network using an EIA 232D (V.24/V.28), V.35, or X.21 interface. These interfaces allow attachment to many types of networks, including analog, digital, packet-switched, and circuit-switched networks at data transmission speeds of up to 128 Kbps.

1.2.16 Wide Area Network (WAN) Communication

The 5494 supports SDLC, X.21 leased, and X.25 communication using an EIA 232D (V.24/V.28), V.35, or X.21 physical interface. The 5494 also supports X.21 switched communication using an X.21 physical interface and frame relay communication using a V.35 or X.21 physical interface.

1.2.17 Local Area Network (LAN) Communication (Token Ring and Ethernet)

The 5494 with a 5494 Token-Ring Adapter or a 5494 Ethernet Adapter installed attaches to a LAN in one of the following configurations.

Subtopics:

- [1.2.17.1 LAN AS/400 Attachment Configuration](#)
 - [1.2.17.2 LAN Gateway Configuration](#)
-

1.2.17.1 LAN AS/400 Attachment Configuration

This configuration allows the 5494 to communicate with the AS/400 system using a LAN. The 5494 and AS/400 system can be on the same LAN or on separate LANs that are connected using bridges.

This configuration supports as many as 56 workstations (NWS or PWS) attached to the 5494 if the Twinaxial Expansion Kit is installed, or 28 workstations if it is not. [Figure 8 in topic 1.3](#) shows an example of a LAN AS/400 Attachment configuration.

1.2.17.2 LAN Gateway Configuration

| This configuration allows PWSs and printers on a LAN to communicate with the AS/400 system through the 5494. This configuration is known as a *LAN gateway configuration* because the 5494 serves as a gateway between LAN-attached devices and an AS/400 system. The 5494 manages workstation communication between the LAN and the AS/400 system over the network interfaces available on the communication port (EIA 232D [V.24/V.28], V.35, or X.21).

This configuration supports as many as 80 workstations. See [Table 1 in topic 1.2.28](#) to determine the number of devices supported by each possible configuration. [Figure 7 in topic 1.3](#) shows an example of a 5494 LAN Gateway configuration.

1.2.18 Attachment to SNA Subarea Network

The 5494 can communicate with an AS/400 system through an SNA subarea network. All 5494 functions are supported and you can attach to the SNA subarea network using any of the protocols and physical interfaces provided by the 5494 with the exception of X.21 short-hold mode (SHM).

| 1.2.19 Frame Relay Token-Ring Bridge

| The 5494 Frame Relay Token-Ring (FR-TR) Bridge feature kit includes 5494
| FR-TR Bridge System Diskettes. To use the feature, you must also install
| the 5494 Memory Expansion Feature.

| With the 5494 configured for FR-TR Bridge, it is possible to bridge
| source-routed token-ring frames across a frame relay network to a bridge
| partner. The partner can be an AS/400, 6611, 2210, or a PC running
| RouteXpander/2. This allows non-SNA devices on the token-ring to access
| the AS/400 or other non-SNA devices. For example, a TCP/IP host on the
| token-ring can have a Telnet session with the AS/400.

| When the AS/400 is the partner, bridged frames can contain SNA, IP, or IPX
| (Novell) protocol. For other bridge partners, the protocols can
| additionally include any networking layer protocol that the bridge partner
| can handle.

| For more information on 5494 bridging, see [Topic 8, "Planning for a Frame](#)
[Relay Token-Ring \(FR-TR\) Bridge" in topic 8.0.](#)

| 1.2.20 Attachment to an Integrated Services Digital Network (ISDN)

| The AS/400 can connect to an ISDN in the following ways:

- | With the ISDN Basic Rate Interface Adapter (FC 2605) using ISDN Data
| Link Control (IDLC) protocol or the X.25 protocol.
- | With an ISDN Terminal Adapter (TA), such as the IBM 7820 using SDLC or
| X.25 protocol.

| Note: The IBM 7820 TA was withdrawn from marketing in the United States
| August 18, 1993.

Subtopics:

- [1.2.20.1 ISDN Configurations](#)
-

| **1.2.20.1 ISDN Configurations**

| AS/400 ISDN Basic Rate Interface Adapter using IDLC: The ISDN Basic Rate
| Interface Adapter is a Basic Rate Interface (BRI) that provides two
| B-Channels for data, each running at 64 Kbps, and one D-Channel for
| signalling running at 16 Kbps. ISDN Data Link Control (IDLC) is IBM's
| implementation of the CCITT Q.922 Specification for a Layer 2 protocol on
| the B-channel. Other platforms have provided alternative protocols to
| IDLC, such as SDLC. However the AS/400 uses only IDLC and can connect
| only to devices that use IDLC at Layer 2.

| ISDN Connection using Terminal Adapters: The IBM 7820 Terminal Adapter is
| designed to interface between non-ISDN network hardware and an ISDN. It
| also provides the two B-Channels for data and one D-Channel for
| signalling. V.24, V.35 and X.21 interfaces are available to allow the
| attachment of non-ISDN equipment. The 7820 simply converts the physical
| signal allowing compatibility with the ISDN, without changing the actual
| protocol. For this reason, the protocols must be the same on either side
| of the 7820, and the 7820 must be used at both ends of the ISDN.

| See *IBM AS/400 ISDN Connectivity*, GG24-3517, for a description of ISDN
| support on the AS/400.

| **1.2.21 Attachment to a Wireless Network**

| The 5494 supports two wireless network configurations. You may select
| either:

- | Wireless AS/400 connection - communicate with an AS/400 using a
| wireless LAN connection
- | Wireless LAN gateway - support for LAN gateway attached wireless
| devices.

Subtopics:

- [1.2.21.1 Wireless AS/400 Connection](#)
 - [1.2.21.2 Wireless LAN Gateway](#)
 - [1.2.21.3 Supported Device Attachments](#)
 - [1.2.21.4 Performance Considerations](#)
-

| **1.2.21.1 Wireless AS/400 Connection**

| The 5494 can communicate with an AS/400 without using wires or telephone
| lines. To do so, the 5494 uses an Access Point (AP) such as the IBM 2480
| attached to a token-ring or Ethernet LAN. The 5494 is configured for a
| LAN AS/400 Connection. It does not require any changes to its
| configuration to have a wireless connection. It can support up to 56
| twinaxial devices in this configuration.

| On the AS/400 side, one of two connections can receive and transmit
| wireless data:

| *AS/400 Wireless LAN Adapter*: With this connection, the 5494 communicates
| through the Access Point on the 5494 LAN (token-ring or Ethernet) directly
| to the Wireless LAN Adapter installed in the AS/400.

| *AS/400 LAN with an attached Access Point*: With this connection, the 5494
| communicates through the Access Point on the 5494 LAN to another Access
| Point on the AS/400 LAN. The 5494 LAN and the AS/400 LAN do not have to
| be the same type (that is, one could be Ethernet and the other
| token-ring).

| To configure the AS/400, refer to *IBM AS/400 Wireless LAN Products Family:
Configuration Examples, Tips, and Techniques*, SG24-4392. The 5494 is
| handled the same as a PC in this wireless environment. Be sure to select
| **Auto Create Controller = *YES** so the APPC and RWS controllers for the 5494
| can be created automatically in the AS/400.

| **1.2.21.2 Wireless LAN Gateway**

| The 5494 is configured for a token-ring or Ethernet LAN gateway in this
| environment. A wireless Access Point (AP) or PC base station is attached
| to the LAN. Wireless LAN devices running Client Access/400 (CA/400) or

| equivalent communicate with the wired LAN through the AP or base station.
| The wireless nature of the connection is transparent to the 5494.

| The wireless LAN gateway configuration consists of:

- | 5494 with a LAN adapter configured for a WAN (SDLC, X.25, X.21, or
| Frame Relay) connection to AS/400 and a LAN gateway (token-ring or
| Ethernet).
- | Access Point or PC base station attached to the LAN
- | Maximum of 80 total devices attached to the 5494 and consisting of:
 - | Up to 56 twinax devices
 - | Up to 80 wired LAN devices, or wireless LAN devices running CA/400
| or equivalent through the Access Point or base station.

| **Note:** The configuration of APs or base stations is not handled directly
| by the 5494.

| **1.2.21.3 Supported Device Attachments**

| The following describes various supported devices for a wireless network.

| *AS/400 Wireless LAN:* The AS/400 wireless LAN family includes:

- | AS/400 Wireless LAN adapter
- | IBM 2480 Access Point
- | Wireless LAN PC adapters for ISA and MCA busses

| *AS/400 Wireless LAN Products Family: Configuration Examples, Tips, and
Techniques* is an excellent reference for using wireless communications
| with your AS/400 system.

| *Wireless LAN Entry*

- | PCMCIA wireless LAN adapter for portable PCs
- | IBM 8227 Access Point for attachment to an Ethernet network.

| *Wireless LAN*

- | ISA, MCA and PCMCIA wireless LAN adapters
- | There is no Access Point. A PC acts as a base station for the wireless LAN.

| **1.2.21.4 Performance Considerations**

| Consider the following when dealing with a wireless LAN:

- | The data rate is less than a wired LAN (2 Mbps or less), so performance will not match that of a wired LAN.
- | Wireless communication is not as reliable as wired communication.
 - | More retries may be necessary, and it is a good idea to configure timeouts with increased values to allow for this.

1.2.22 Logical Connection Continuous Retries

The 5494 allows you to configure your 5494 to allow continuous retries after communications have been lost with the AS/400 system. If you do not configure your 5494 to allow continuous retries, the retry parameters select a number of retries and an interval. When they are exceeded, intervention is required to reestablish the connection manually.

Continuous retries, if configured, take effect after normal retries are exceeded or if an error occurs after which no retry is possible. The 5494 attempts to reestablish the logical connection at 10-minute intervals until a connection is made. You can terminate these attempts by using the procedure defined in the *IBM 5494 Remote Control Unit User's Guide*, "Ending a Communication Link." This feature is especially useful for systems that use leased communications lines and make the AS/400 system or its subsystems unavailable to do normal maintenance.

1.2.23 Flexible Configuration Options

The following methods can be used to configure the 5494:

Subtopics:

- [1.2.23.1 Configuring from a Stand-Alone PWS](#)

- [1.2.23.2 Configuring from a PWS Attached to the 5494](#)
 - [1.2.23.3 Configuring from an NWS Attached to the 5494](#)
 - [1.2.23.4 Modifying Configuration Using the Utility Program Remote Access Function](#)
 - [1.2.23.5 Backup Configuration Accessible from Diskette](#)
-

1.2.23.1 Configuring from a Stand-Alone PWS

The 5494 Utility Program can be used on a stand-alone PWS running disk | operating system (DOS), Operating System/2_(*) (OS/2), or DOS/V (Japan). It provides user-friendly panels with help information to enter configuration parameters. Configuration information is saved on the utility diskette or another standard 3.5-inch diskette.

This option allows creation of many 5494 configuration diskettes at one central site. The diskettes can then be sent to remote sites, where the configuration information is easily copied from the diskette to permanent storage in the 5494 and to the 5494 system diskette.

1.2.23.2 Configuring from a PWS Attached to the 5494

The 5494 Utility Program can also be used on a PWS attached to the 5494 through the Twinaxial Workstation Attachment or a LAN Gateway configuration. This option allows configuration information to be saved directly to permanent storage in the 5494 and to the 5494 system diskette.

1.2.23.3 Configuring from an NWS Attached to the 5494

When configuring the 5494 from an attached NWS, a configuration program is run directly from the 5494. This program provides two panels for entering configuration parameters. Configuration information is saved directly to permanent storage in the 5494 and to the 5494 system diskette.

1.2.23.4 Modifying Configuration Using the Utility Program Remote Access Function

The 5494 Utility Program allows you to manage 5494s from a central site. The Utility Program uses the connection between the AS/400 system and the 5494 to communicate with the 5494. Once communication is established, the Utility Program can be used to modify configuration information and save it directly to permanent storage in the 5494 and to the 5494 system diskette. The changes to configuration do not take effect until the 5494 is restarted. To prevent unauthorized modification of configuration data, Utility Program access to the 5494 requires either a 5494 system password or entry of a request code (REQ290) on the 5494 keypad.

| 1.2.23.5 Backup Configuration Accessible from Diskette

| When the 5494 is configured with the Utility Program in Stand-Alone mode,
| it is possible to save the configuration with a special flag. When this
| special configuration is placed on a 5494 system diskette, the 5494 will
| use the configuration on the diskette rather than the one from permanent
| storage. Therefore, you can have your usual configuration in permanent
| storage, and if your network becomes unavailable, you can restart the 5494
| with the special backup diskette, and the backup configuration will be
| used instead.

| When your original network is restored, replace your backup diskette with
| your original system diskette and restart the 5494. The configuration in
| permanent storage will again be used.

1.2.24 Automatic Configuration on the AS/400

The APPC controller description can be automatically created by the AS/400 system when using a LAN connection to the AS/400 system. This capability also allows automatic configuration on the AS/400 system of the 5494 RWS controller and the device descriptions of 5494 attached NWSs. You do not have to configure NWSs (displays or printers) that are twinaxially attached to the 5494 if the OS/400 operating system is at least Version 3 Release 1.

1.2.25 Permanent Storage of Configuration Information

When the 5494 is configured from an attached workstation, the configuration information is saved in permanent storage in the 5494. When the 5494 is configured from a stand-alone workstation, the configuration information can be transferred from a 3.5-inch diskette to permanent storage in the 5494.

There is no need to reconfigure the 5494 every time a new system diskette is received (as with a new code release). When a new system diskette is used, the 5494 automatically retrieves the configuration information from permanent storage and copies the information onto the new system diskette.

1.2.26 Alternate AS/400 System Support

The 5494 can be configured to store parameters for communicating with any one of the four preconfigured AS/400 systems. Link establishment information for each AS/400 system is stored in the 5494. This allows the 5494 operator to end a connection with one AS/400 system and conveniently establish a new connection with an alternate AS/400 system.

1.2.27 Concurrent Host Attachment

The 5494 can be configured to communicate concurrently with up to four AS/400 systems over a single data link level connection. PWSs attached to the same 5494 have always been able to communicate with

different AS/400 systems in the communication network. Now, concurrent host attachment extends this capability to NWSs (displays and printers) without the use of AS/400 display station or printer passthrough.

Concurrent host attachment uses the SNA session level routing capabilities of an APPN network or an SNA subarea network to reach multiple AS/400 systems in the network. The advantages of concurrent host attachment are:

- More efficient communication

Without concurrent host attachment, all NWS session traffic must travel to a single target AS/400 system before it can be rerouted to another AS/400 system using Display Station Passthrough or Printer Passthrough. With concurrent host attachment, the 5494's ALS can route NWS session traffic toward the correct AS/400 system depending on the layout of the communication network. This can reduce the number of communication links an NWS session must traverse yielding reduced response time and a reduction in total network traffic.

- Ease of Use

Without concurrent host attachment, the user must log on at the 5494's primary AS/400 system and then start Display Station Passthrough to get to a second AS/400 system. With concurrent host attachment, the user needs only to logon at the second AS/400 system because the NWS sessions are routed directly to the desired AS/400 system. The user might not even need a logon ID at the 5494's primary AS/400 system, if the only purpose it served was to allow Display Station Passthrough to get to another AS/400 system.

- Printer sharing

| With printer sharing, printers attached to the 5494 using a twinaxial connection can be shared by up to four AS/400 systems. Printer sharing can be disabled when using concurrent host attachment. In this case each printer can be dedicated to any one of the four configured AS/400 systems.

- Enhanced APPN mode usage

By defining an alias name for an AS/400 system, you can configure the same AS/400 system configured twice in the 5494, once with the AS/400 LU name and once with the alias name. By defining a different mode name for each, printer and display traffic can travel through the communication network with different classes of service. For example, printers could use the host configured for mode BATCH (Class of Service = #BATCH) and displays could use the one configured for mode QRMTWSC (Class of Service = #CONNECT). This would minimize the impact of printer traffic on display response time.

1.2.28 System Expandability

As workstation configurations change due to adding new workstations, removing existing workstations, or relocating workstations, the 5494 automatically recognizes the changes. There is no need to reconfigure the 5494. NWSs and PWSs can be modified at the AS/400 system, but both can automatically reconfigure themselves on the AS/400 system. Refer to *AS/400 Remote Work Station Support* for more information.

The 5494 can be upgraded to provide token-ring network support by installing the 5494 Token-Ring Adapter. Alternatively, the 5494 can be upgraded to provide Ethernet network support by installing the 5494 Ethernet Adapter.

The Twinaxial Expansion Kit allows the 5494 to support up to 56 workstations.

| Note: OS/400 Version 2 Release 3 or later is required for support of up
| to 56 workstations.

| The Frame Relay Token-Ring Bridge Feature provides bridging support for
| non-SNA data from token-ring attached devices over the frame relay
| network.

The 5494 also contains additional adapter slots for future enhancements.

[Table 1](#) provides an illustration of device support.

Table 1. 5494 Number of Devices				
Twinaxial Expansion Kit Installed	Token-Ring or Ethernet Adapter Installed	Maximum Twinaxial WSs	Maximum LAN devices	Total number of WSs for System
No	No	28	N/A	28
Yes	No	56	N/A	56
No	Yes	28	80	80
Yes	Yes	56	80	80

1.2.29 Code Maintenance and Upgrade

The 5494 provides a versatile method for maintaining the code. In most cases, between-release code maintenance is provided through updates as part of the AS/400 Program Temporary Fix (PTF) process. These updates are automatically transmitted from the AS/400 system to the 5494 during vary-on processing. New code releases are provided through a new 3.5-inch 5494 system diskette.

There is no need to reconfigure the 5494 every time a new system diskette is received (as with a new code release).

1.2.30 5494 Utility Program

The 5494 includes a Utility Program, provided on a 3.5-inch diskette, that allows configuration, network link establishment, and diagnostic functions to be run on a PWS attached to the 5494 as either a twinaxial or LAN workstation. The Utility Program also allows configuration of the 5494 from a PWS not connected to the 5494 (that is, a *stand-alone* PWS). This feature is described in more detail under "[Configuring from a Stand-Alone PWS](#)" in topic [1.2.23.1](#).

If you are configuring for the first time, the Utility Program includes user-friendly panels with help information for completing 5494 functions as quickly and easily as possible.

| The Utility Program may be used with DOS, OS/2, or DOS/V operating

| systems.

Subtopics:

- [1.2.30.1 Remote Access Function](#)
-

1.2.30.1 Remote Access Function

The Utility Program also has a remote access function that provides access to configuration and diagnostic functions through the communication network. This allows you to diagnose a problem, modify configuration, or restart the 5494 from a central site.

1.2.31 5494 System Password

A system password may be provided by the user for the 5494. The password allows the user to access the 5494 from the 5494 Utility Program in order to:

- Access diagnostic information, including error logs, without typing the access code on the 5494 keypad
- Access and change configuration while the 5494 is communicating with the AS/400 system (normal mode)
- Reset (restart) the 5494 without accessing the 5494 power switch.

The password is entered at configuration time. The reset option is available only if a password has been configured.

Subtopics:

- [1.2.31.1 OS/400 Change Remote Workstation Controller Password Command](#)
-

1.2.31.1 OS/400 Change Remote Workstation Controller Password Command

AS/400 Version 3 Release 6 has added a new command that allows changing the 5494 password from the AS/400 system. The new command, Change Remote Workstation Controller Password (CHGRWSPWD), allows setting or resetting of the 5494 system password. A 5494 system password is required for some of the 5494 Utility Program functions. See AS/400 system Control Language documentation for more information.

1.2.32 AS/400 Performance Monitor Support

The 5494 supports the Performance Monitor, an AS/400 function that enables the AS/400 system to request that the 5494 measure and report information on the response time of nonprogrammable workstations (NWSs) attached to it. *Response time* is used to measure system performance. Response time is the interval between the beginning of a transaction and the response, specifically, the interval between the entry of a command and the point when the display is released for input. For information on using the Performance Monitor, refer to *AS/400 Programming: Work Management* and *AS/400 Programming: Performance Tools/400*.

Note: If concurrent host attachment is being used, response time data is collected for the NWSs communicating with the AS/400 system that requested the data.

1.2.33 Systems Network Architecture (SNA) Alert Support

Problem determination support is provided on the 5494 in the form of:

- Error message codes displayed on the 5494 operator panel LCD
- Error logs that record errors occurring on the 5494 and all attached workstations.

In addition, the 5494 SNA Alert function sends device, program, and communication error information to the AS/400 system, where alert messages can be displayed on the AS/400 operator's console.

The 5494 generates alerts in response to the following types of errors:

- Attached display station and printer errors
- Unknown device errors, which occur if an attached device fails to initialize properly and cannot be identified by the 5494
- | Code change errors, which occur if a code correction file is incompatible with the level of code loaded on the 5494, or if the code correction file contains format errors
- LU 6.2 NWS device session errors, which are communications protocol errors that are most likely to be encountered by users writing applications to run on the AS/400 system
- Low-entry networking (LEN) PWS errors, which are link-level or session-level errors affecting programmable workstations attached directly to the 5494
- LAN Gateway errors, which are errors detected by the 5494's Token-Ring or Ethernet Adapter
 - | Frame relay token-ring bridge errors.

| 1.2.34 Nways Campus Manager LAN for AIX 2.0 Support

| The 5494 controller Release 3.1 and 3.2, along with AS/400 V3R6 and later
| will be able to utilize the APPN Topology function of Router and Bridge
| Manager (RABM). IBM's Nways Campus Manager LAN for AIX 2.0 product along
| with RABM function will show the 5494 as a LEN node on the local topology
| map under the APPN Topology views. In addition, the AS/400 Version 3
| Release 6 and later supports a private enterprise MIB (a structure of 5494
| vital product data that the AS/400 keeps track of). The 5494 Releases 3.1
| and 3.2 are unchanged. The ability to view the 5494 MIB data along with
| an icon view of 5494s in a network makes it easier to manage both AS/400s
| and 5494s in your network.

1.2.35 5494 Vital Product Data Retrieval

Vital product data (VPD) for the 5494 and its attached nonprogrammable workstations and printers is collected by the AS/400 system at the time the controller is varied on. This data includes the model, serial number, and release level. The information for the 5494 can be retrieved and displayed or printed on the Version 3 Release 6 AS/400 system using the Display Controller Description (DSPCTLD) command and specifying the remote workstation (RWS) controller.

In addition, VPD for the controller and the attached nonprogrammable devices can be retrieved by a program using the Retrieve Controller Description (QDCRCTLD) API format for the RWS controller category.

1.3 Data Communication System Configurations with the 5494

The role of the 5494 in your data communication system [\(2\)](#) depends on how you connect the 5494 to the AS/400 systems and workstations.

[Table 2](#) shows the possible roles of the 5494 in a data communication system. [Figure 6](#) through [Figure 9](#) in topic [1.3](#) show examples of these configurations.

Table 2. 5494 Data Communication Roles			
Hardware	AS/400 Attachment	Workstation Attachment	Example
5494	EIA 232D (V.24/V.28), V.35, or X.21	Twinaxial (5250)	Figure 6
5494 with 5494 Token-Ring Adapter	EIA 232D (V.24/V.28), V.35, or X.21	Twinaxial (5250) and/or Token-Ring	Figure 7
5494 with 5494 Token-Ring Adapter	Token-Ring	Twinaxial (5250)	Figure 8
5494 with 5494 Ethernet Adapter	EIA 232D (V.24/V.28), V.35, or X.21	Twinaxial (5250) and/or Ethernet	Figure 7
5494 with 5494 Ethernet Adapter	Ethernet	Twinaxial (5250)	Figure 8
5494	Concurrent Host Attachment using a single data link level connection	Twinaxial (5250)	Figure 9

		to an APPN network node	
5494 with 5494 Token-Ring Adapter, 5494 Frame Relay Token-Ring Bridge Feature, and 5494 Memory Expansion Feature	Frame Relay using V.35 or X.21	Token-Ring (with or without twinaxial)	Figure 10

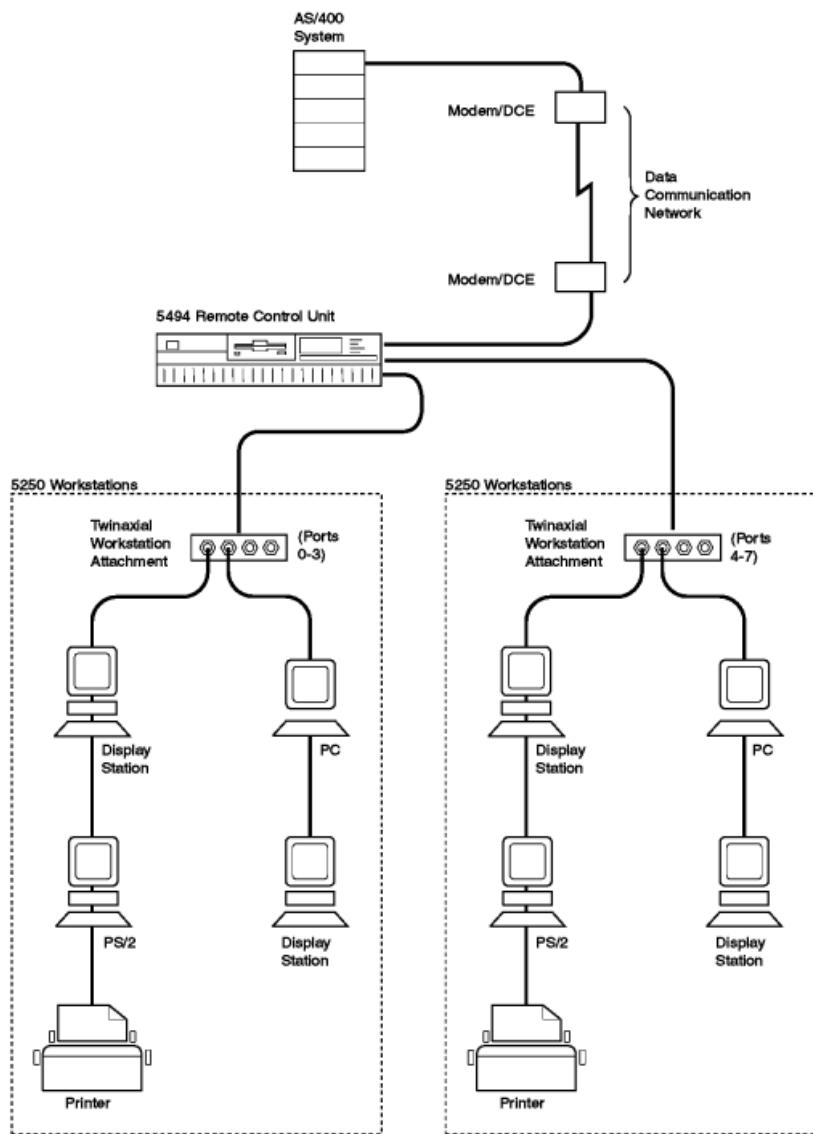


Figure 6. Example of 5494 with Twinaxial Expansion Kit

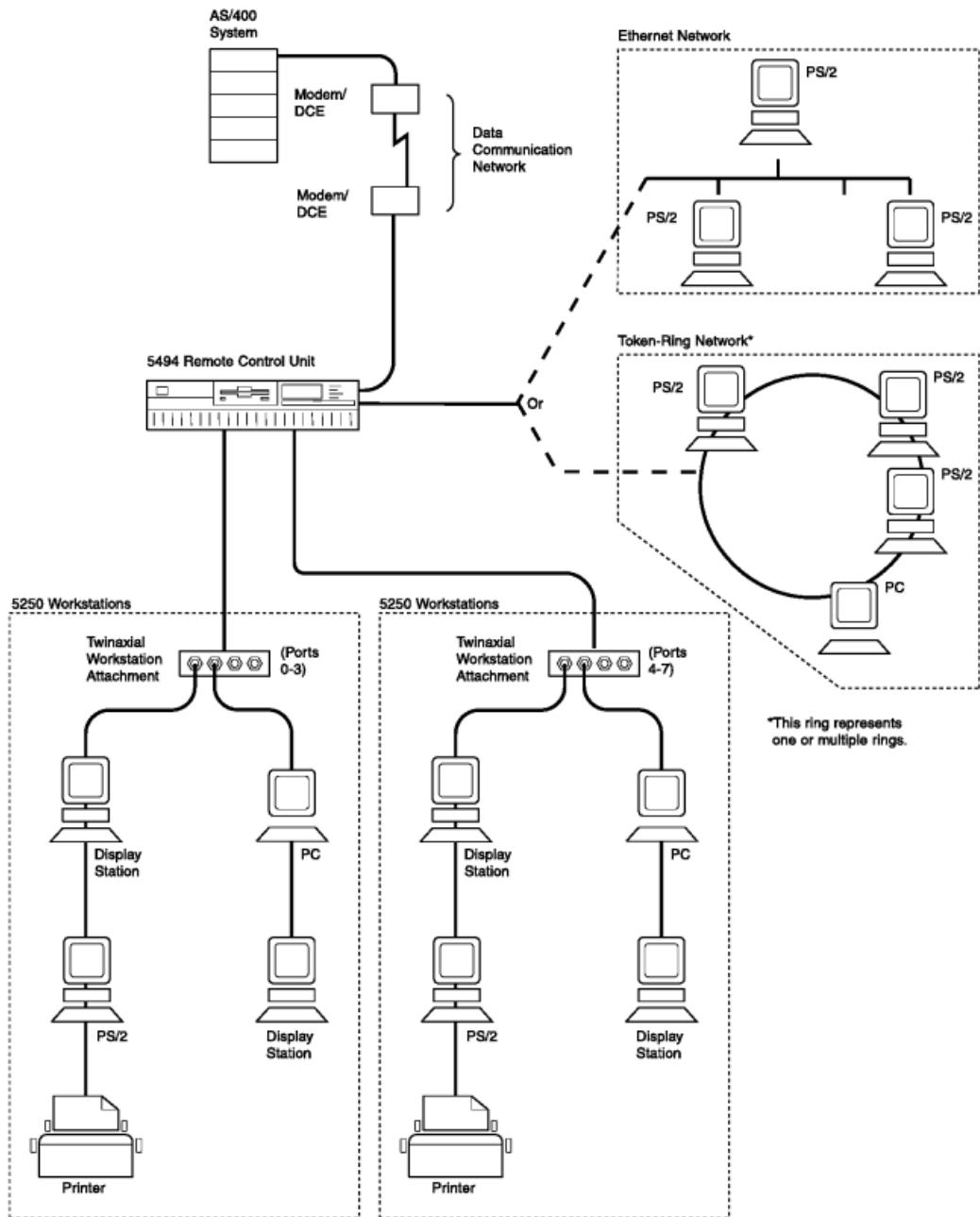


Figure 7. Example of 5494 with Twinaxial Expansion Kit and Token-Ring or Ethernet Gateway

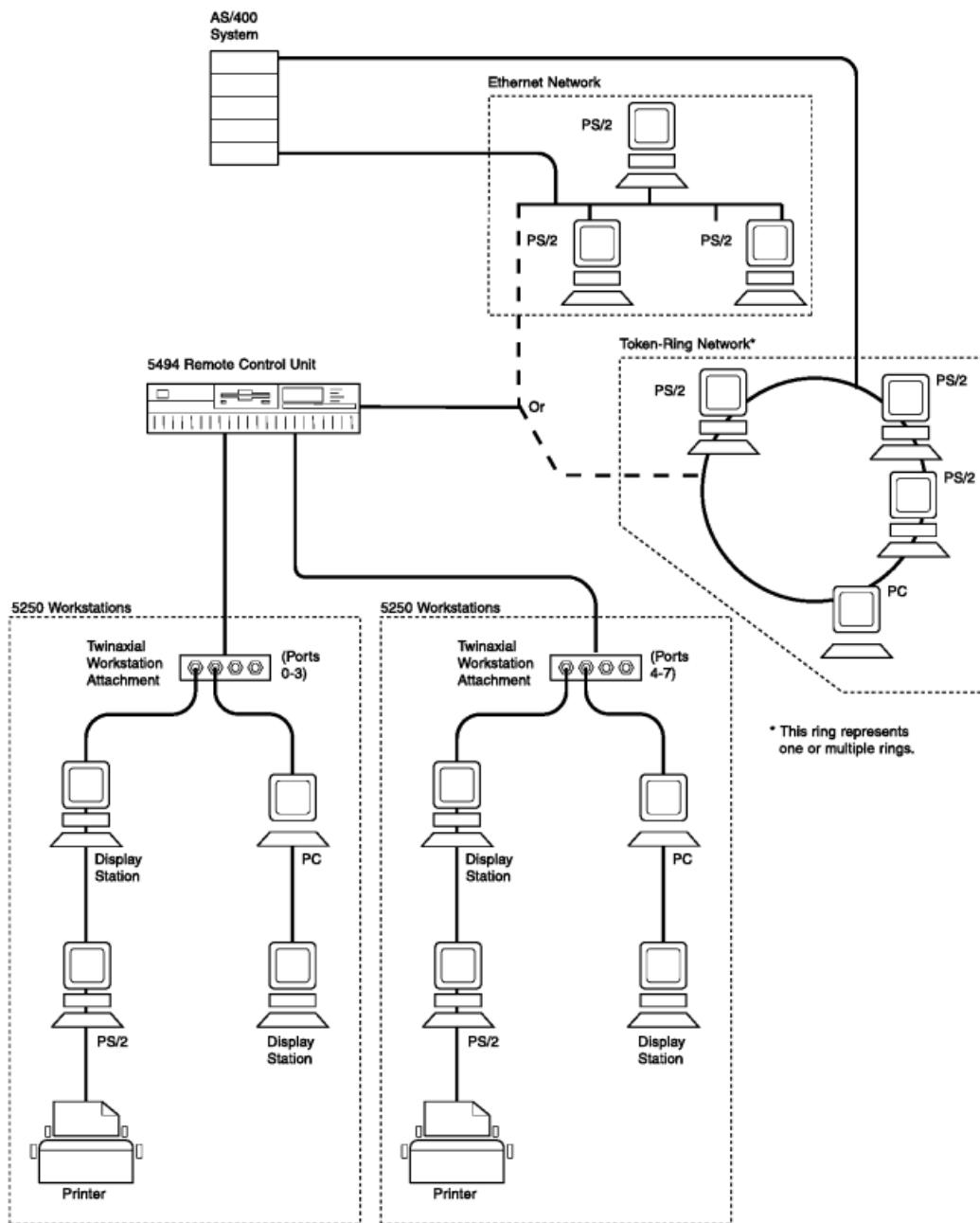


Figure 8. Example of 5494 with Twinaxial Expansion Kit and Token-Ring AS/400 or Ethernet AS/400 Attachment

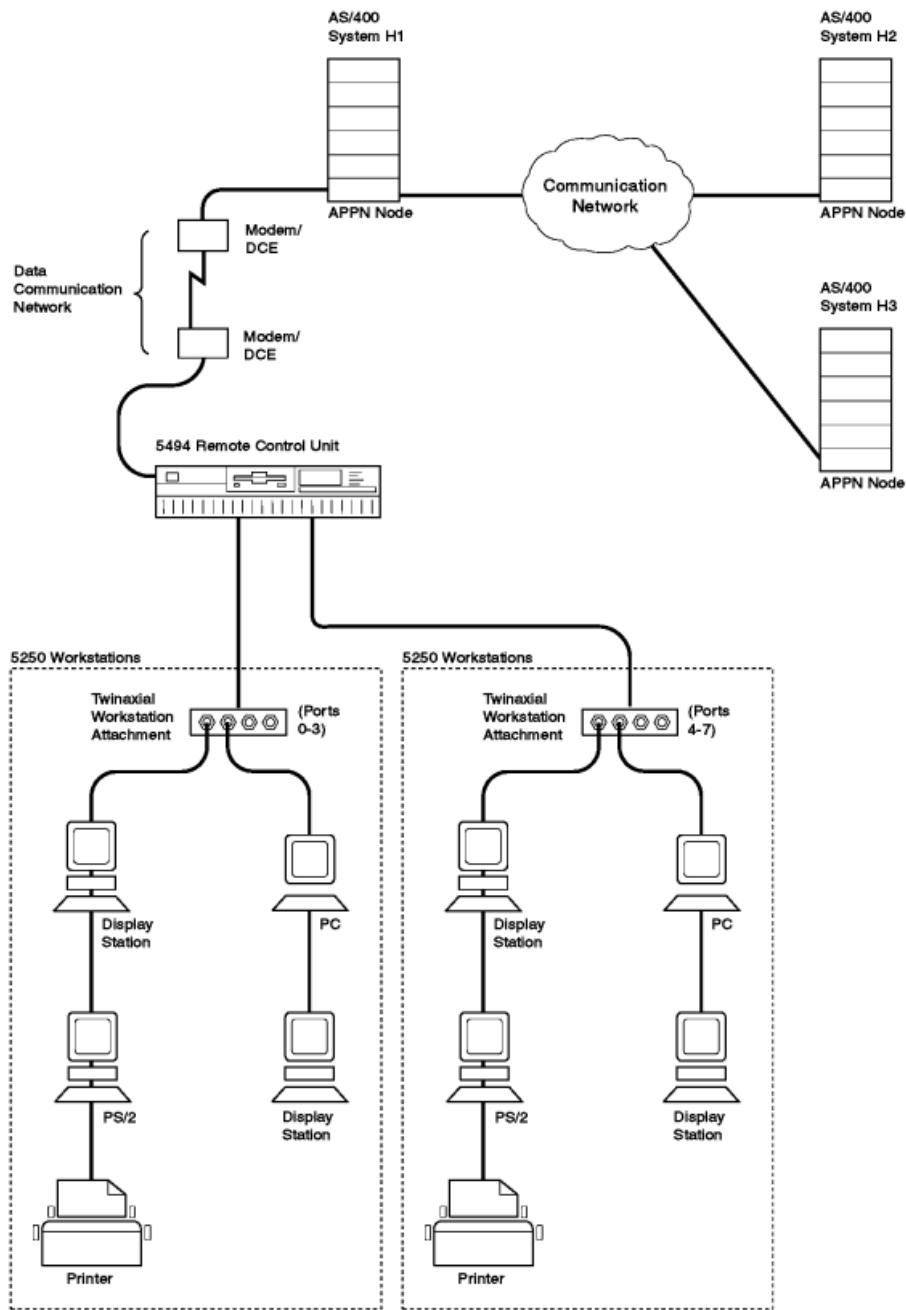


Figure 9. Example of 5494 Communicating with Three Hosts Concurrently

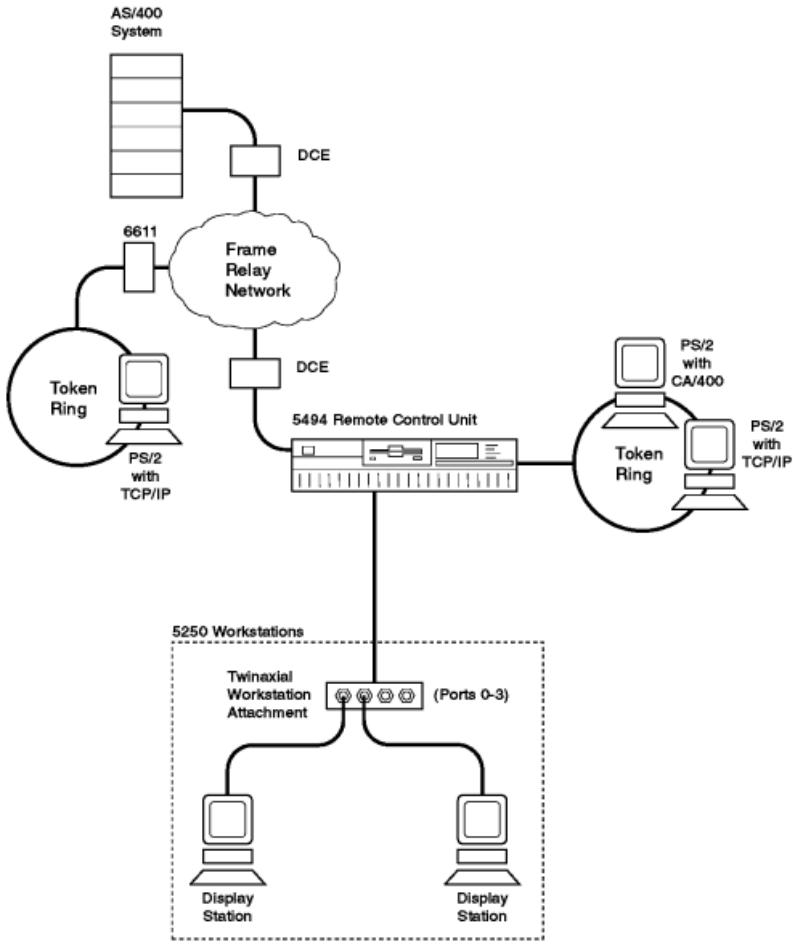


Figure 10. Example of 5494 with Token-Ring Gateway and Frame Relay Token-Ring Bridge.

(2) The term ***data communication system*** refers to a configuration of data processing devices, software, and a communication network connected for information interchange.

1.4 Equipment Required for a Data Communication System

A typical data communication system consists of the following major components:

- An AS/400 system
- A 5494 Remote Control Unit
- Workstations
- A communication network, including modems or data circuit-terminating equipment (DCE), and possibly a LAN.

This section describes the AS/400 systems, workstations, modems and DCEs, other devices, and network types supported by the 5494. If you need further information about data communication, refer to communication and AS/400 publications listed in ["Related Publications" in topic](#)

PREFACE.3.

Subtopics:

- [1.4.1 AS/400 Systems Programming Support](#)
 - [1.4.2 Twinaxial \(5250\) Workstations](#)
 - [1.4.3 Devices Attached Using a LAN Gateway Configuration](#)
 - [1.4.4 Other Devices](#)
 - [1.4.5 Modems and DCEs](#)
 - [1.4.6 Networks](#)
-

1.4.1 AS/400 Systems Programming Support

For all 5494 releases, Operating System/400 (OS/400) Version 2 Release 1 Modification 1 or higher is required.

| If you are using the Twinaxial Expansion Kit, OS/400 Version 2 Release 3
| or later is required for 56-device support.

For full function of the 5494 Release 3.1, OS/400 Version 3 Release 1 or higher is required. This AS/400 release includes support for automatic configuration of the RWS controller and attached devices, shared addressing, 5250 fax and image, and 5250 video delivery.

1.4.2 Twinaxial (5250) Workstations

The 5494 supports the following workstations for direct attachment with any cable that supports 5250 data stream communication:

Display Stations:

- IBM 3179 Color Display Station Model 2
- IBM 3180 Display Station Model 2
- IBM 3196 Display Station Models A10, A20, B10, and B20
- IBM 3197 Display Station Models C10, C20, D10, D20, D40, W10, and W20
- IBM 3476 InfoWindow Display Station [\(*\)](#) Models A10, A20, AA0, AB0, B10, B20, BAx [\(2\)](#), BGx, BA0, BB0, EAx, and EGx
- IBM 3477 InfoWindow Display Station Models C1y [\(4\)](#), C2y, CA0, CB0, D1y, D2y, DA0, DB0, E1y, E2y, EA0, EB0, FAx, FCx, FDx, FGx, HAx, HCx, HDx, HGx, J, K, S, T, W1y, W2y, WA0, and WB0

- IBM 3486 InfoWindow II Display Station Models BAx, BGx, Axx, and Bxx
- IBM 3487 InfoWindow II Display Station Models HAx, HCx, HGx, Cxx, Dxx, Exx, and Wxx
- IBM 3488 InfoWindow II Display Station Model H1x V1x, V4x, and V5x, Axx, Bxx, Cxx, Dxx, Exx, 0Ax, 0Bx, 1Ax, 1Bx, 2Ax, 2Bx, 3Ax, and 3Bx
- IBM 3489 InfoWindow II Display Station Model V1x, V4x, V5x, Axx, Bxx, Cxx, Dxx, and Exx
- IBM 5251 Display Station Models 11 and 999
- IBM 5291 Display Station Models 1 and 2
- IBM 5292 Color Display Station Models 1 and 2
- IBM 5295 Display Station Models 1, 2, 0C2, 0H2, GP3, and LK1.

Personal Workstations:

- IBM Personal Computer or Personal System/2 (PS/2) computer running:
 - Enhanced 5250 Emulation Program
 - IBM System 36/38 Workstation Emulation Program
 - PC Support/400 Version 2 Release 2.0 or higher
 - Client Access/400 (formerly PC Support/400)
 - Networking Services/Disk Operating System (DOS)
 - Operating System/2 (OS/2) Extended Edition (EE) 1.3
 - OS/2 with Extended Services (ES) 1.0 or higher
 - OS/2 with Communications Manager/2
- IBM RISC System/6000 (RS/6000)
 - IBM 5250 Emulation
- IBM Personal System/55_(*) (PS/55) computer running:
 - Japanese 5250 PC emulation programs
 - IBM Japanese 5250 Personal Computer/2 AD (5250 PC/2 AD) Support
 - Japanese 5250 Workstation Program Version 3.0 or higher
 - OS/2 EE J1.3
 - OS/2 with ES J1.0 or higher
- IBM BS/150 System computer running Japanese 5250 PC emulation programs.

Printers:

- IBM 3112 Page Printer Model 001
- IBM 3116 Page Printer Models 001, 002, and 003
- IBM 3812 Printer Models 1 and 2
- IBM 3816 Printer Models 01D and 01S
- IBM 3912 Printer Models AS0 and AS1
- IBM 3916 Printer Models AS0 and AS1
- IBM 3930 Page Printer Models 02S and 02D (with F/C 9217)
- IBM 4028 Printer Model AS1
- IBM 4210 Printer Model 1
- IBM 4214 Printer Model 2
- IBM 4224 Printer Models 101, 102, 1C2, 1E2, and 1E3

- IBM 4230 Printer Models 101, 102, 1I1, 1S2, 4S3, and 4I3
- IBM 4234 Printer Models 2, 8, and 012
- | IBM 4247 Serial Impact Printer Model 001
- IBM 5219 Printer Models D01 and D02
- IBM 5224 Printer Models 1 and 2
- IBM 5225 Printer Models 1, 2, 3, and 4
- IBM 5227 Printer Models 1, 2, 3, and 5
- IBM 5256 Printer Models 1, 2, and 3
- IBM 5262 Printer Model 1
- IBM 5317 Printer Model 1
- IBM 5327 Printer Models 1, 2, and 3
- IBM 6252 Impactwriter_(*) Models T08 and T12
- IBM 6262 Impact Printer Models T12, T14, and T22
- | IBM 6400 Line Matrix Printer Models 004, 008, and 012
- IBM 6408 Line Matrix Printer Model CT0 and CTA
- IBM 6412 Line Matrix Printer Models CT0 and CTA.
- | IBM 4312 Network Printer 12 Model 001, 002, and 003
- | IBM 4317 Network Printer 17 Model 001 and 002
- | IBM 4324 Network Printer 24 Model 001 and 002

(3) The letter *x* represents the specific model designation 1 or 3.

(4) The letter *y* represents the specific model designation 0 through 9.

| 1.4.3 Devices Attached Using a LAN Gateway Configuration

| The 5494 supports workstations and printers attached to the 5494 using a
| LAN gateway configuration.

Subtopics:

- [1.4.3.1 Workstations](#)
 - [1.4.3.2 Printers](#)
-

| 1.4.3.1 Workstations

- A personal computer or PS/2 computer running one of the following programs:
 - | Client Access/400
 - PC Support/400 Version 2 Release 2.0 or higher
 - Networking Services/DOS
 - OS/2 EE 1.3
 - OS/2 with ES 1.0 or higher
 - OS/2 with Communications Manager/2 Version 1.0 or higher.
- An RS/6000 system running Connection Program/400

- A PS/55 computer running one of the following programs:

- Japanese 5250 Workstation Program Version 3.0 or higher
 - OS/2 EE J1.3
 - OS/2 with ES J1.0 or higher.
-

| 1.4.3.2 Printers

| The 5494 supports the following printers attached to the 5494 through a
| token-ring gateway:

- | IBM 3130 Advanced Function Printer Models 01S, 02S, 02D, and 03S
 - | IBM 3935 Advanced Function Page Printer Model 001
-

1.4.4 Other Devices

The 5494 also supports the following devices:

- | IBM 2210 Nways Multiprotocol Router
 - IBM 5208 (ASCII-5250) Link Protocol Converter
 - | IBM 5308 ASCII to 5250 Connection
 - IBM 5209 (3270-5250) Link Protocol Converter
 - IBM 5299 Model 3 Terminal Multiconnector
 - ROLMbridge 5250 Line Protocol Converter Model 46815B
 - IBM 6299 Hub Models 100, 200, 8DB, 8TC, and 900.
 - IBM 6611 Network Processor
 - IBM 7820 ISDN Terminal Adapter
 - IBM 8209 LAN Bridge
 - IBM 8222 6-Port 10BASE-T Workgroup Hub
 - IBM 8228 Multistation Access Unit
 - IBM 8230 Controlled Access Unit.
-

1.4.5 Modems and DCEs

If you are communicating with your AS/400 system through an analog communication network, the 5494 and the AS/400 system are attached to the communication line through modems. The transmitting modem converts the digital signals to analog signals and transmits these signals over the communication line. The receiving modem converts the analog signals back to digital signals. The transmitting modem and the receiving modem must be compatible. For example, the modems must transmit data at the same speed and use the same modulation methods. The 5494 supports the following IBM modems:

- IBM 3833 Model 1
- IBM 3834 Model 1
- IBM 3863 Models 1 and 2

- IBM 3864 Models 1 and 2
- IBM 3865 Models 1 and 2
- IBM 3868 Models 1, 2, 3, and 4
- IBM 3872 Model 1
- IBM 3874
- IBM 3875
- IBM 5811 Models 10, 18, 20, and 28
- IBM 5812 Models 10 and 18
- IBM 5821 Model 10
- IBM 5822 Model 10
- IBM 5842 Model 1
- IBM 5853 Model 1
- IBM 5858
- IBM 5865 Models 1, 2, and 3
- IBM 5866 Models 1, 2, and 3
- IBM 5868 Models 51, 52, 61, and 62
- IBM 7855 Model 10
- IBM 7861
- IBM 7868

If your network is an X.21 Public Data Network or an X.25 Packet-Switched Public Data Network, your 5494 and the AS/400 system are attached to the network through DCEs. The network may provide you with DCEs. If not, your network supplier should give you information for ordering this equipment. Contact your network supplier for more information.

1.4.6 Networks

The 5494 using the EIA 232D (CCITT V.24/V.28) communication cable can attach to the following types of networks:

- Public or private, leased or switched, point-to-point or multipoint, analog lines using a modem
- Dataphone Digital Service (DDS) using a Data Service Unit (DSU) with an EIA 232D interface
- X.21 Circuit-Switched or Leased-Circuit Data Networks using an X.21 bis (V.24/V.28) DCE
- X.25 Packet-Switched Data Networks using an X.21 bis (V.24/V.28) DCE
- SNA Subarea Network or an APPN network.
- | ISDN via the attached terminal adapter

The 5494 using the CCITT X.21 communication cable can attach to the following types of networks:

- X.21 Circuit-Switched Data Networks using an X.21 DCE
- X.21 Leased-Circuit Data Networks using an X.21 DCE (point-to-point or multipoint)

- X.25 Packet-Switched Data Networks using an X.21 DCE
- Frame Relay Networks using an X.21 DCE
- T1 Leased-Circuit using a fractional T1 multiplexer
- SNA Subarea Network or an APPN network.
- | ISDN via the attached terminal adapter

The 5494 using the CCITT V.35 communication cable can attach to the following types of networks:

- DDS using a DSU with a V.35 interface
- Point-to-point or multipoint leased line
- Broadband analog networks
- Point-to-point high-speed private line using limited-distance modems
- X.21 Circuit-Switched or Leased-Circuit Data Networks using an X.21 bis (V.35) DCE
- X.25 Packet-Switched Data Networks using an X.21 bis (V.35) DCE
- T1 Leased-Circuit using a fractional T1 multiplexer
- SNA Subarea Network or an APPN network
- Frame Relay Networks using a V.35 interface.
- | ISDN via the attached terminal adapter

The 5494 with a 5494 Token-Ring Adapter installed communicates with the following types of token-ring networks:

- 4 Mbps Token-Ring
- 16 Mbps Token-Ring

The 5494 with a 5494 Ethernet Adapter installed communicates at 10 Mbps with each of the following types of cabling and connectors:

- 10BASE2 BNC
- 10BASE5 15-pin D-SUB
- 10BASE-T RJ-45

IEEE 802.3 and DIX Version 2.0 are the supported Ethernet frame formats.

[Topic 4, "Planning Your Communication Network," provides more information about](#) planning for these networks.

1.5 Advanced Networking

The 5494 is an SNA Type 2.1 Node and communicates with the AS/400 system using SNA LU 6.2 protocols. The 5494 is therefore able to communicate with one or more AS/400 systems through an SNA subarea network or through an Advanced Peer-to-Peer Network (APPN).

Subtopics:

- [1.5.1 Attachment to an SNA Subarea Network](#)
 - [1.5.2 Attachment to an APPN Network](#)
-

1.5.1 Attachment to an SNA Subarea Network

The Type 2.1 Node support in IBM Network Control Program (NCP) and IBM Virtual Telecommunications Access Method (VTAM) allows the 5494 to communicate with an AS/400 system through an SNA subarea network.

The benefits of attaching to an SNA subarea network are:

- Increased networking options

You have the option of using an existing SNA subarea network. The SNA subarea gives your 5494 easy access to any AS/400 system in the network (one AS/400 system at a time or up to 4 systems concurrently) and your 5494 attached PWSs can easily access one or more AS/400 systems in the network, independently of the 5494.

- Enhanced network management

When you are attached to an SNA subarea network, your network management is enhanced because the communication link between the 5494 and the low-entry networking-boundary function (LEN-BF) is visible to the NetView program.[\(*\)](#) NetView also is aware of all sessions between the 5494 and the AS/400 system.

- Reduced line costs

Your line costs may be reduced because the 5494 eliminates the need for a dedicated communication line from the 5494 to the AS/400 system. The 5494 can share a line to the SNA subarea network with other systems.

Subtopics:

- [1.5.1.1 Supported Network Attachments](#)
 - [1.5.1.2 Performance Considerations](#)
-

1.5.1.1 Supported Network Attachments

The 5494 supports direct attachment to the SNA subarea by attaching to the following devices:

- IBM 3720 Communication Controller
- IBM 3725 Communication Controller
- IBM 3745 Communication Controller

A minimum level of VTAM and NCP support is required for the attachment of the T2.1 LEN nodes to the SNA Subarea Network. This support was added to:

- VTAM Version 3 Release 2
- NCP Version 4 Release 3 for the 3725 controller
- NCP Version 4 Release 2 for the 3720 and 3745 controllers.

In addition, the 5494 can access the SNA subarea network through the following devices:

- IBM 3174 Establishment Controller
- IBM PS/2 computer operating as a network node.

The 3174 Establishment Controller requires gateway support and either:

- Configuration Support C Release 3
- Configuration Support B Release 4.3 with Pass-Through RPQ.

The PS/2 computer requires one of the following OS/2 programs to operate as a network node:

- Network Services/2
 - Extended Services
 - Communications Manager/2.
-

1.5.1.2 Performance Considerations

Workstations attached to the 5494 and communicating with an AS/400 system through an SNA subarea network may see slower response times as compared to a directly attached 5494 (given the same communication line speed) because of overhead associated with the intermediate nodes. The extent of any impact is dependent upon network considerations.

1.5.2 Attachment to an APPN Network

The SNA LU 6.2 and Type 2.1 Node support provided by the 5494 allows the 5494 to participate in an APPN network as a Low-Entry Networking (LEN) End Node. The 5494 can communicate with one to four AS/400 systems through an APPN network by using the directory and routing services provided by the network. In this case, the 5494 establishes a connection (LU 6.2 sessions) with AS/400 systems that are not the adjacent node.

The benefits of attaching to an APPN network are:

- Increased networking options

You have the option of using an existing APPN network. The APPN network gives your 5494 easy access to any AS/400 system in the network (one AS/400 system at a time or one to four systems concurrently) and your 5494 attached PWSs can easily access one or more AS/400 systems in the network, independently of the 5494.

- Enhanced network management

Your network management is enhanced because you can use your APPN network management tools to track the status of the 5494 sessions.

- Reduced line costs

Your line costs may be reduced because the 5494 eliminates the need for a dedicated communication line from the 5494 to the AS/400 system. The 5494 can share a line to the APPN network with other systems.

Subtopics:

- [1.5.2.1 Supported Network Attachments](#)
 - [1.5.2.2 Performance Considerations](#)
-

1.5.2.1 Supported Network Attachments

The adjacent network node must be one of the following:

- IBM AS/400 system
 - IBM 3174 Establishment Controller
 - IBM PS/2 computer running Network Services/2, Extended Services for OS/2, or Communications Manager/2.
-

1.5.2.2 Performance Considerations

Workstations attached to the 5494 and communicating with an AS/400 system through an APPN network may see slower response times as compared to a directly attached 5494 (given the same communication line speed) because of overhead associated with the intermediate nodes. The extent of any impact is dependent upon network considerations.

1.6 Planning for Migration to the 5494 Remote Control Unit

To migrate from the 5394 to the 5494, consider the following factors:

- **Host system support:** The 5494 can be attached to the AS/400 system only. The 5494 cannot be attached to the System/36, System/38, or AS/Entry.
- **Cabling:** The 5494 offers four twinaxial ports for workstation attachment. The number of twinaxial ports can be increased to eight with the Twinaxial Expansion Kit. The 5494 with a 5494 Token-Ring Adapter installed offers token-ring network attachment. The 5494 with a 5494 Ethernet Adapter installed offers Ethernet network attachment. This may affect your present or future cabling requirements. For more information, see [Topic 3, "Planning for Cables."](#)
- **Configuration:** After replacing your 5394 control unit with a 5494, you must reconfigure your system. This includes configuring the 5494 and configuring new descriptions that relate to the 5494 on your AS/400 system. For more information, see [Topic 4, "Planning Your Communication Network."](#)

[Table 3](#) shows a comparison of the 5394 and the 5494.

Table 3. Comparison of 5394 and 5494		
Description	5394	5494
Host system support	System/36, System/38, AS/400 system, or AS/Entry	AS/400 system
Token-Ring support	No	Yes
Ethernet support	No	Yes
Frame Relay	No	Yes
Maximum number of twinaxial ports	3	8
Maximum number of workstations	16	Base 5494: 28 Twinaxial Expansion Kit: 56 Token-Ring Adapter: 80 Ethernet Adapter: 80
5294 emulation	Yes	No
Configuration methods	Attached NWS only	Attached PWS or NWS Stand-alone PWS Remote PWS (updates only)
Configuration storage	Diskette	Internal permanent storage and diskette
Requirement for at least one NWS (for	Yes	No

control unit operator)		
Utility Program with system password	No	Yes
Attachment to an SNA Subarea Network	RPQ 8Q0775	Yes
OS/400 Version 3 Release 1 automatic configuration of RWS controllers and devices	RPQ 8Q0775	Yes
Concurrent Host Attachment	No	Yes
Frame Relay Token-Ring Bridge	No	Yes
Wireless Devices	No	Yes, Requires Token-Ring or Ethernet LAN

2.0 Topic 2. Preparing Your Site

This topic provides information to help you prepare your site for the 5494. It addresses the following items:

- Planning checklist
- Environmental considerations
- Electrical requirements
- Space, service, and cooling requirements.

The following checklist suggests tasks that should be done before receiving your 5494. Check each list item after you complete the task. Modify the checklist, if necessary, to meet your specific requirements.

Subtopics:

- [2.1 Planning Checklist](#)
- [2.2 Environmental Considerations](#)
- [2.3 Electrical Requirements](#)
- [2.4 Space, Service, and Cooling Requirements](#)

2.1 Planning Checklist

- Coordinate personnel and suppliers to assist in ordering equipment and planning the remote installation:

- Planner
- Network supplier
- Modem supplier
- Hardware supplier

- Study the environment of the site:

- Temperature and humidity requirements
 - Electrostatic discharge
 - Electromagnetic compatibility
 - Atmospheric contaminants
- Study the electrical requirements of the site.
- Determine space, service, and cooling needs:
- Dimensions
 - Service requirements
 - Cooling requirements
- Determine cabling needs (see [Topic 3, "Planning for Cables"](#)):
- Communication cable
 - IBM Cabling System
 - Token-Ring cable
 - Twinaxial Workstation Attachment
 - Ethernet cable
 - 10BASE2
 - 10BASE5
 - 10BASE-T
 - Twinaxial cabling
 - Cable-through
 - No cable-through
 - Preassembled cables
 - Bulk cables
 - Telephone twisted-pair (TTP) cabling
- Prepare a floor plan showing the placement of all system components and cabling.
- Prepare the Remote Workstation Setup Worksheets. See [Topic 3, "Planning for Cables."](#)
- Order workstations, control units, modems or DCEs, cabling, and required communication network facilities.
See [Topic 4, "Planning Your Communication Network."](#)
- Complete the required configuration worksheets in [Topic 5, "Preparing the Configuration Worksheets."](#)
Give a copy of the completed worksheets to the person who configures the 5494.
- Complete the required network link establishment worksheet in [Topic 6, "Preparing the Network Link Establishment Worksheet."](#)
Give a copy of the completed worksheet to the person who operates the 5494.
- Make sure that communication equipment needed for your AS/400 connection and for a LAN gateway (if applicable) is installed.
- Make sure that correctly wired and grounded electrical outlets are installed.

2.2 Environmental Considerations

While planning your site, consider the environmental factors discussed in the following sections.

Subtopics:

- [2.2.1 Temperature and Humidity Requirements](#)
 - [2.2.2 Electrostatic Discharge](#)
 - [2.2.3 Electromagnetic Compatibility](#)
 - [2.2.4 Atmospheric Contaminants](#)
-

2.2.1 Temperature and Humidity Requirements

[Table 4](#) shows the temperature and relative humidity ranges tolerated by the 5494.

Table 4. Temperature and Humidity Limits for 5494		
When	Temperature Range	Relative Humidity
Operating	10±40°C (50±104°F)	8%-80%
Not operating	10±50°C (50±125°F)	8%-80%
In storage	1±60°C (34±140°F)	5%-80%
In shipment	-40±60°C (-40±140°F)	5%-100%

2.2.2 Electrostatic Discharge

With low humidity levels, static charges generated by the movement of people, carts, furniture, and paper are more readily stored in certain types of floor construction, floor coverings, and furniture. If discharged to or near data processing or other electronic equipment, *these charges can cause intermittent interference*. To minimize electrostatic discharge:

- Avoid high-resistance floor surface material. Floor surface resistance measured between the floor surface and the building (or other applicable ground reference) should be greater than $1.5 \times 10(5)$ ohms and less than $2 \times 10(10)$ ohms. The measuring method is specified in National Fire Protection Association, Inc., 56A, Chapter 462.
 - Avoid carpeting that does not have antistatic properties.
 - Avoid plastic seat coverings.
 - Avoid low humidity levels.
-

2.2.3 Electromagnetic Compatibility

Avoid placing the 5494 in an area of high electromagnetic interference that can be radiated or conducted. Such areas may exist within 500 m (1650 ft) of radio frequency sources, such as radio-transmitting antennas (AM, FM, TV, and two-way radio), radar (FAA and military), and within 50 m (164 ft) of certain industrial machines (induction heaters, arc welders, and insulation testers), industrial time clocks, and high-energy power lines. Other sources of electromagnetic interference may include transformers (including those installed in other units), power distribution panels (three-phase power distribution lines), rotating machinery, and certain electrical heating systems.

Some power supplies in printers, modems, and other data processing equipment may interfere with workstation screens and the 5494 diskette drive. If you encounter an interference problem, maintain a minimum distance of 1 m (39 in.) between the 5494, workstations, and other data processing equipment.

If any of these electromagnetic interferences are present, determine whether special installation or product considerations are necessary to ensure normal system operation and maintenance.

2.2.4 Atmospheric Contaminants

Avoid environments where particulate, liquid, and gaseous atmospheric contaminants exist.

Some contaminants, for example, can cause corrosion of copper and other metals used in computer systems. Extended corrosive growth in any computer system can produce electrical short circuits or contact failures that result in system malfunctions. Corrosion can become so extensive that an entire system or machine may need to be replaced.

2.3 Electrical Requirements

CAUTION:

For your safety, you must connect equipment only to a properly wired and grounded outlet. An improperly wired outlet can place hazardous voltage on accessible metal parts of the equipment. You are responsible for outlet wiring.

If it becomes necessary to change the power cord, order a new power cord from your IBM sales representative. If the outlet is improperly wired, have the change made according to local or national code.

Note: For translations of this safety notice, see [Appendix A, "Safety Notices."](#)

[Table 5](#) shows the power requirements of the 5494.

Table 5. 5494 Power Requirements		
Power Characteristics	Low Voltage	High Voltage
Volts ac (limits)	90–139 V rms	180–265 V rms
Volts ac (nominal range)	100–127 V rms	200–240 V rms

Frequency (single phase)	50/60 Hz	50/60 Hz
Current (maximum peak)	2.5 amps	1.6 amps
Current (maximum steady state)	1.3 amps	0.65 amps
Current (nominal)	0.38 amps	0.19 amps
Power consumption (maximum)	131 watts/0.131 kVA	131 watts/0.131 kVA
Power consumption (nominal)	42 watts/.042 kVA	42 watts/.042 kVA
Heat output (maximum)	447 BTUs per hour 113 kcal per hour	447 BTUs per hour 113 kcal per hour
Heat output (nominal)	143 BTUs per hour 36 kcal per hour	143 BTUs per hour 36 kcal per hour

Legend:

BTU = British Thermal Unit
kVA = kilovolt-ampere
kcal = kilocalorie

2.4 Space, Service, and Cooling Requirements

The 5494 is a small control unit designed to be placed on a table. Make sure that the table is large enough to provide space for service clearance requirements and proper ventilation. When stacking data processing devices, rack mounting with sheet metal shelves is suggested.

Attention Do not stack another 5494 or any other electrical equipment on top of the 5494. This could result in intermittent errors during operation.

The following are the weight and physical dimensions of the 5494:

Height:

14.0 cm (5.5 in.)

Width:

44.0 cm (17.3 in.)

Depth:

43.0 cm (16.9 in.)

Weight:

11.8 kg (26 lb).

Allow clearance for service personnel to inspect and maintain the 5494. This helps limit the time that your 5494 is offline.

The 5494 has no special cooling requirements. However, the 5494 requires clearance to operate correctly. Make sure that the louvers of the 5494 are not blocked.

3.0 Topic 3. Planning for Cables

This topic provides information to help you plan your cabling for the 5494. This information covers:

- Communication cable
- Token-ring cabling
- Ethernet cabling
- IBM Cabling System
- Twinaxial cabling
- Telephone twisted-pair (TTP) cabling
- Preparing the floor plan
- Completing the Remote Workstation Setup Worksheets.

Although these tasks may not be completed until setup, this information is included here to help you make the correct cabling decisions for your installation.

DANGER

Never work on equipment, or connect or disconnect signal cables during periods of lightning activity.

Note: For translations of this safety notice, see [Appendix A, "Safety Notices."](#)

Physical Limitations: Each twinaxial port on the 5494 is capable of supporting as many as seven workstations. The 5494 with a LAN adapter installed allows attachment of additional workstations in a LAN Gateway configuration.

Subtopics:

- [3.1 Communication Cable](#)
- [3.2 Token-Ring Cabling](#)
- [3.3 Ethernet Cabling](#)
- [3.4 IBM Cabling System](#)
- [3.5 Twinaxial Cabling](#)
- [3.6 Telephone Twisted-Pair Cabling](#)
- [3.7 Preparing the Floor Plan](#)
- [3.8 Completing the Remote Workstation Setup Worksheets](#)

3.1 Communication Cable

If you are not using a LAN for AS/400 attachment, a multiwired communication cable connects the 5494 to the modem or DCE. You must use the cable that comes with the 5494 to make sure that your control unit operates correctly. See [Table 6](#) to determine the communication cable and hardware you need.

Table 6. Communication Cables and Hardware		
Interface	Description	IBM Part Number
ANSI EIA 232D (V.24/V.28)	Communication cable with UNC 4-40 thumbscrews (except for Japan, Germany, and South Korea)	02F9660
ANSI EIA 232D (V.24/V.28)	Communication cable with M2.6 thumbscrews (Japan and South Korea only)	02F9661
ANSI EIA 232D (V.24/V.28)	Communication cable with M3 thumbscrews (Germany only)	02F9662

CCITT X.21	Communication cable	02F9670
CCITT V.35	Communication cable with 1.6-mm diameter pins (except for France)	02F9676
CCITT V.35	Communication cable with 1-mm diameter pins (France only)	02F9677
Note: Cable length is 6.1 m (20 ft) for all interfaces.		

3.2 Token-Ring Cabling

If you use a 5494 with a 5494 Token-Ring Adapter installed in a LAN AS/400 Attachment configuration, a token-ring cable connects the 5494 to the token-ring network. The 5494 Token-Ring Adapter comes with a token-ring cable. In this configuration, workstations attach to the 5494 using the Twinaxial Workstation Attachment.

If you use a 5494 with a 5494 Token-Ring Adapter installed in a Token-Ring Gateway configuration, a communication cable connects the 5494 to a modem or DCE, and the token-ring cable connects the 5494 to the Token-Ring Gateway network.

For information about cabling to a multistation access unit, refer to the *Token-Ring Network Introduction and Planning Guide*.

3.3 Ethernet Cabling

If you use a 5494 with a 5494 Ethernet Adapter installed, you must provide one of the following types of cables to attach the 5494 to your Ethernet network.

- A category 3, 4, or 5 cable with RJ-45 connectors for use with the telephone twisted-pair (10BASE-T) media in your Ethernet network.

The maximum length of twisted-pair cable between the concentrator and the 5494 is 100 meters (328 feet).

- An RG-58 standard coaxial cable (IEEE standard 802.3 10BASE2) with bayonet connectors (BNCs), if your Ethernet network uses thin coaxial media.

Note: A BNC T-type connector is shipped with the Ethernet Adapter Kit.

The maximum length of thin coaxial cable between each repeater is 185 meters (607 feet). The minimum length of thin coaxial cable between each repeater is 0.5 m (19.7 in.).

- A shielded-twisted-pair drop cable with 10BASE5 attachment unit interface (AUI) connectors, if your Ethernet network uses external transceivers. An IBM Mini AUI-to-AUI Adapter Cable (P/N 59G9004) is also required.

The maximum length of drop cable between each transceiver is 50 m (164 ft).

3.4 IBM Cabling System

When you plan a new installation, you may find that the wiring in your building does not meet the voice and communication needs of your new installation.

The solution is to install a cabling system, such as the IBM Cabling System, that provides a variety of voice and data communication uses. The IBM Cabling System includes cables and cable accessories for attaching a wide variety of workstations.

The wiring design for the IBM Cabling System uses the wiring-closet distribution concept. Most of the wiring is concentrated in small rooms or closets. Work areas are wired to one or more wiring closets. After the IBM Cabling System is installed, you can change the work area configuration and wiring closets without additional costly rewiring to the building.

Note: The cables of the IBM Cabling System must not be connected with other twinaxial cabling.

[Figure 11](#) shows an example of workstation attachment using the IBM Cabling System. In this example, only one port is shown; however, you can connect multiple ports in a similar manner. Actual wiring varies from one building to another. For information about installing and maintaining the IBM Cabling System, refer to the *LAN Cabling System Planning and Installation Guide* and to the *Cabling System Problem Determination Guide for Twinaxial Applications*.

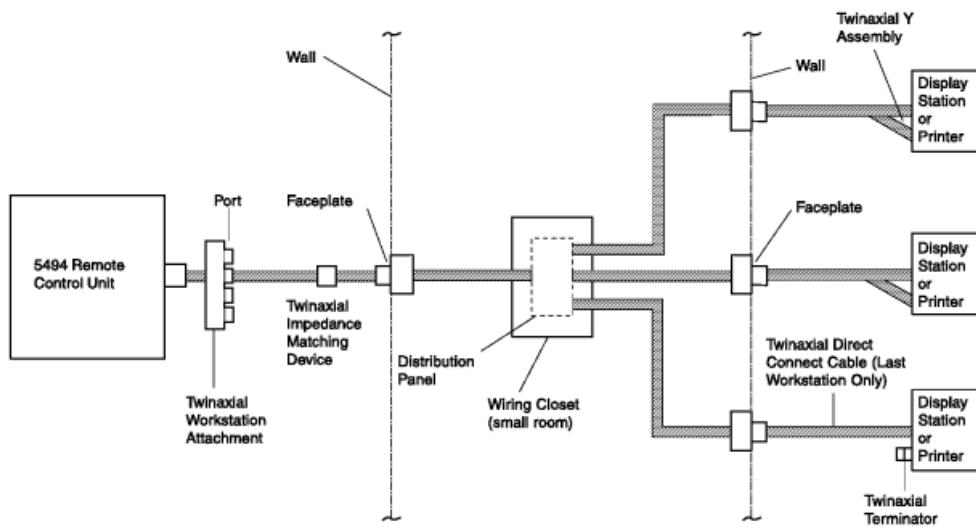


Figure 11. Workstation Attachment Using IBM Cabling System

A twinaxial impedance-matching device (IBM P/N 6091070) is used to connect both the 5494 and the last workstation in a cable-through string to the IBM Cabling System. The last workstation in a cable-through string should be terminated normally. Twinaxial impedance-matching devices can also be used to connect workstations that have only one port to the IBM Cabling System. A single-port workstation must be the last workstation in a cable-through string. The twinaxial impedance-matching device is color-coded green.

A twinaxial Y assembly (IBM P/N 8642550) is used to connect workstations using cable-through to the IBM Cabling System. Both ports of the workstation connect to the twinaxial Y assembly. Each branch of the twinaxial Y assembly is numbered and color-coded. The leg marked with a red 1 connects to workstation port 1 and the leg marked with a blue 2 connects to workstation port 2.

Instead of a twinaxial impedance-matching device, a twinaxial direct-connect cable (IBM P/N 6091075) can be used to connect the last workstation in a cable-through string to the IBM Cabling System. If the twinaxial direct-connect cable is used, a 150-ohm twinaxial terminator (IBM P/N 6091068) must be used in place of the workstation's terminator. The twinaxial terminator is color-coded green. Twinaxial workstation cable-through is accomplished at the distribution panel using Y assemblies (IBM P/N 8642549).

3.5 Twinaxial Cabling

5250 terminals are usually connected to the 5494 using twinaxial cabling. You must decide whether or not to use cable-through when attaching workstations.

Note: To avoid interference, do not install twinaxial cables near electrical equipment or power lines that carry more than 440 volts.

Subtopics:

- [3.5.1 Using Cable-Through](#)
 - [3.5.2 Computing Configuration Limits](#)
 - [3.5.3 Using Preassembled or Bulk Twinaxial Cables](#)
-

3.5.1 Using Cable-Through

If you plan to attach several workstations to a 5494, consider using cable-through. Cable-through allows the attachment of as many as seven workstations to the same port on the 5494 and saves cable cost. All workstations on a cable-through line, except for the last workstation, must have two twinaxial ports (sockets) or an auto-termination unit for cable attachment. If you are using a workstation with only one twinaxial port, this workstation must be the last or only workstation on that 5494 port. See [Figure 12](#).

Note: It is recommended that you keep one display station or personal computer within 6 m (20 ft) of the 5494 for the convenience of maintenance personnel.

When to Use Cable-Through: Use cable-through when you plan to attach more than one workstation to a port. This normally reduces the amount of twinaxial cable required.

When Not to Use Cable-Through: If you have more twinaxial ports than workstations and they are located at relatively short distances from the 5494, it may be easier to attach the workstations to separate ports on separate cables as shown in [Figure 13](#).

5494 Remote Control Unit

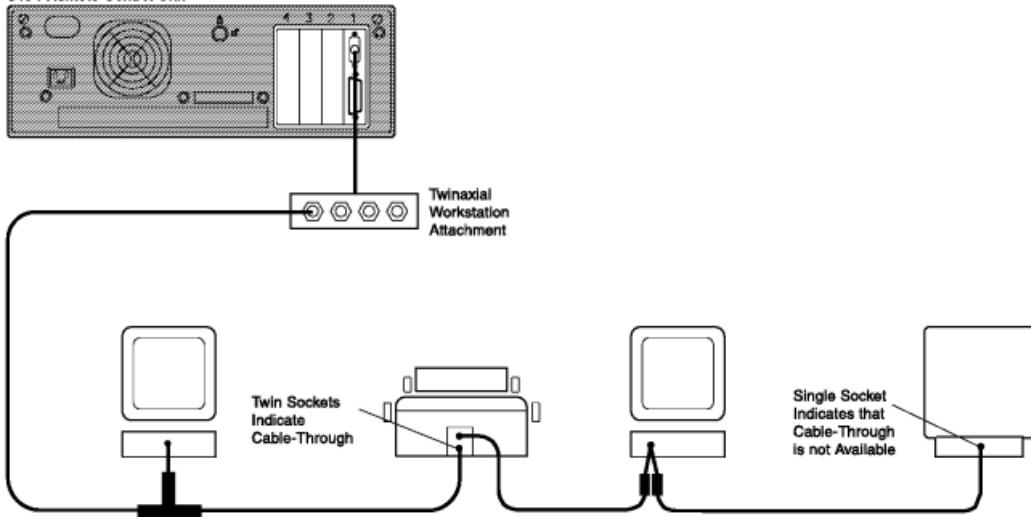


Figure 12. Sample Configuration Using Cable-Through

5494 Remote Control Unit

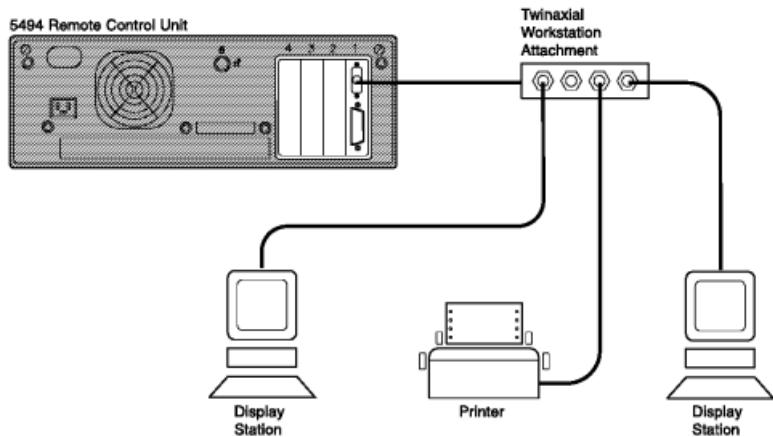


Figure 13. Sample Configuration without Cable-Through

3.5.2 Computing Configuration Limits

The last workstation on a cable-through line can be no more than 1524 m (5000 ft) of type 1 or type 2 cable from your 5494. Cable length limitations for the IBM Cabling System are based on the attenuation-rate of type 1 or type 2 cable. You can create configurations in which type 6, 8, or 9 cable is combined with type 1 or type 2 cable. However, type 6, 8, and 9 cables have a higher attenuation-rate than type 1 or 2 cable. This means that a signal transmitted over type 6, 8, or 9 cable weakens more quickly than a signal transmitted over type 1 or 2 cable. To have the same signal-carrying capacity as a section of type 1 or 2 cable, a section of type 6, 8, or 9 cable would have to be much shorter.

To account for the differences in attenuation rate in a section of cable that includes two or more cable types, you calculate the length of type 1 or 2 cable that is equivalent to a segment of type 6, 8, or 9 cable. You use the *equivalent cable length* rather than the actual cable length to determine whether the overall length of the signal path is within the 1524 m (5000 ft) limitation.

For twinaxial cable applications, the formulas for computing the equivalent length are:

For all devices except 5520 printers:

- Equivalent length = $A + 2B + 1.5C$

For 5520 printers only:

- Equivalent length = $A + 2B + 2.5C$

Where:

- A is the actual length of type 1 or type 2 cable
- B is the actual length of type 8 cable
- C is the actual length of type 6 or 9 cable.

Example: For 304.8 m (1000 ft) of type 1 cable and 30.5 m (100 ft) of type 8 cable:

- Equivalent length = $304.8 \text{ m [1000 ft]} + 2(30.5 \text{ m [100 ft]}) = 365.8 \text{ m [1200 ft]}$.

For a configuration in which more than one cable type is used, the last workstation on a cable-through line can be no more than 1524 m (5000 ft) in *equivalent* cable length from the 5494.

3.5.3 Using Preassembled or Bulk Twinaxial Cables

It is recommended that you order and use preassembled twinaxial cables. However, you may want to order bulk cable and connectors, then assemble them at your remote site. When using preassembled or bulk cables, consider the following requirements:

- The minimum distance allowed between twinaxial cable and fluorescent, neon, or incandescent lighting fixtures is 127 mm (5 in.).

- The minimum distance allowed between twinaxial cable and unshielded power lines or electrical equipment depends on the power consumption of the equipment:

2 kVA or below:

127 mm (5 in.)

2-5 kVA:

305 mm (12 in.)

Over 5 kVA:

610 mm (24 in.)

- The minimum distance allowed between twinaxial cable and unshielded power lines or electrical equipment with the signal cable enclosed in grounded metallic conduit is:

2 kVA or below:

63.5 mm (2.5 in.)

2-5 kVA:

152 mm (6 in.)

Over 5 kVA:

305 mm (12 in.)

- The minimum distance allowed between twinaxial cable and power lines in grounded metallic conduit is:

2 kVA or below:

63.5 mm (2.5 in.)

2-5 kVA:

152 mm (6 in.)

Over 5 kVA:

305 mm (12 in.)

- The minimum distance allowed between twinaxial cable enclosed in grounded metallic conduit and power lines enclosed in grounded metallic conduit is:

2 kVA or below:

30.5 mm (1.2 in.)

2-5 kVA:

76 mm (3 in.)

Over 5 kVA:

152 mm (6 in.)

You can use twinaxial cable indoors or outdoors, although twinaxial cable is not recommended for direct burial without conduit. You will need some type of carrier to provide support every 3 m (9 ft 10 in) for overhead installation.

Outdoor connections are permitted only if the connections are potted in a weatherproof compound. You should not install twinaxial cable under water. Also, for protection from lightning, you must attach a station protector (see "[Station Protectors](#)" in topic 3.5.3.1) at each end of the cable that is run outdoors (for buried and overhead cables).

You can run cable in the same conduit as telephone lines.

Suggested outdoor installation methods for twinaxial cables are as follows. Your site's exposure to lightning should determine which method you use:

- In high lightning-exposure areas, bury cables in grounded metal conduit.
- In average lightning-exposure areas, use one of the following methods:
 - Bury cables in metal conduit or in nonmetallic conduit with two 6 AWG bare copper shield wires installed 0.6 m (2 ft) above the conduit.
 - Put overhead cables under a shield line. The shield line is a metal cable run on the same poles. (Power lines can also have a shielding effect on cables.) The signal cables must hang at least 1 m (3.3 ft) below the shield line. [Figure 14](#) shows shield lines used with overhead cables.

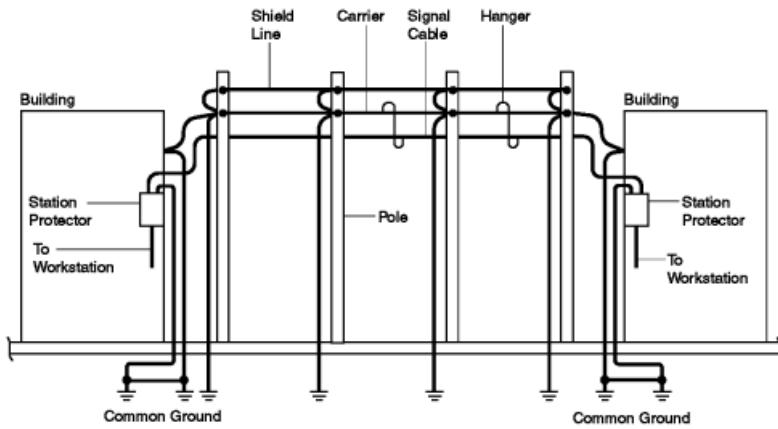


Figure 14. Using Shield Lines with Overhead Cables

Note: When you run the cable jointly with the power line, the carrier wire should be bonded to the multiground neutral (MGN). You can use the MGN instead of an earth-driven grounding rod. Bond all ground points to the power company MGN.

- In low lightning-exposure areas, use one of the following methods:
 - Bury cables in nonmetallic conduit.
 - Put overhead cables on a carrier with the carrier grounded at each end. See [Figure 15](#).

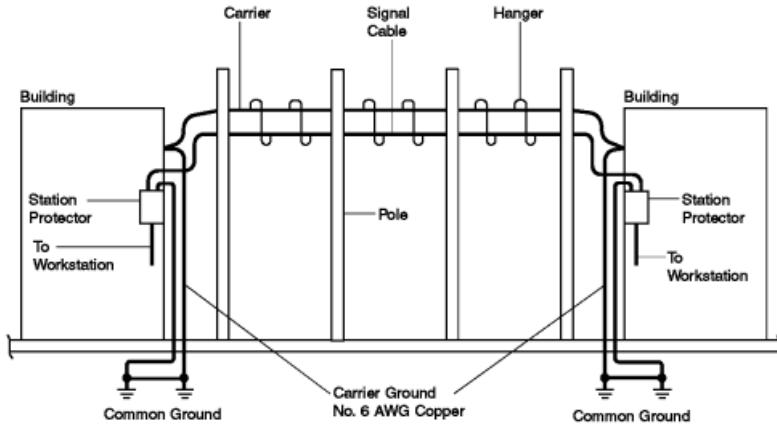


Figure 15. Using Carrier with Overhead Cables

Note: Overhead twinaxial cables should not be the highest point in the area.

Subtopics:

- [3.5.3.1 Station Protectors](#)
- [3.5.3.2 Grounding Recommendations](#)
- [3.5.3.3 Ordering Information](#)

3.5.3.1 Station Protectors

Station protectors are required for each outdoor or underground circuit run. A station protector provides for grounding of the cable shield for personnel safety and contains solid-state components for unit protection. Station protectors *must be installed indoors* where the cable enters or exits the building and as close as possible to a suitable ground. Station protectors must not be installed near combustible materials or in hazardous locations, as defined in Article 500 of the National Electric Code (NEC). Also, the station protector must be grounded at the building entrance or exit point (refer to Article 800-31 in NEC).

Station protectors are used in pairs. One station protector is located at each cable exit in the originating building, and another station protector is located at each cable entrance to adjoining buildings. You can install only one station protector kit (two station protectors) per port; therefore, only one outdoor (or underground) cable run is allowed for each port used. See [Figure 16](#) for placement of station protectors.

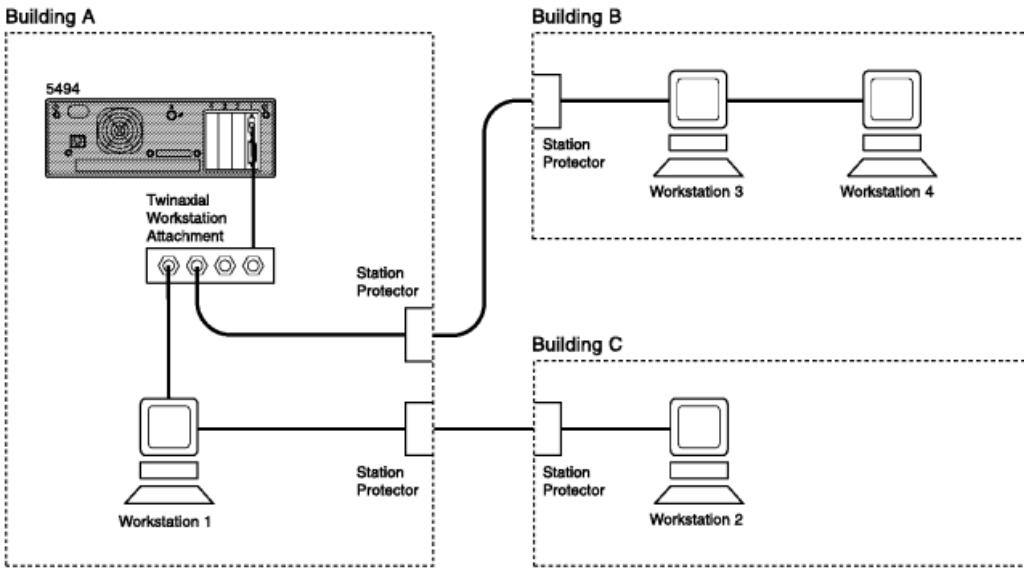


Figure 16. Station Protectors

You are responsible for supplying, installing, and maintaining station protectors. You can order the Twinaxial Station Protector Kit, which consists of two station protectors and is sufficient to install one outdoor cable with a station protector at each end. You can order single station protectors for twinaxial cable.

Order station protectors from your IBM sales representative. If you want to connect the station protectors to your lines before the workstations arrive, specify an earlier ship date.

To facilitate system recovery in the event of electrical damage, order extra station protectors when you place your initial order.

Install the station protectors so that the components in them can be easily inspected. Do not install these protectors in areas where unauthorized persons might come in contact with them.

Note: Cables are attached to the station protectors with the same connectors that attach to the system. Therefore, when you order equipment, allow two additional connectors for each station protector in your configuration.

3.5.3.2 Grounding Recommendations

It is important to provide sufficient grounding (grounding conductor and grounding electrode) for the station protector. The following minimum recommended requirements apply to station protector grounding. The grounding conductor:

- Should be 6 AWG wire or larger
- Should be less than 3 m (9 ft 10 in.) long
- Should run in a straight line to a grounding electrode that has a ground resistance of less than 10 ohms.

You should also provide common grounding between the station protector, the utility ground, and all extensive metal components in the vicinity of the system. (This prevents side flashes caused by lightning.) The conductor used for interconnecting grounds should be at least No. 6 AWG wire.

DANGER

Never work on equipment, or connect or disconnect signal cables during periods of lightning activity.

Note: For translations of this safety notice, see [Appendix A, "Safety Notices."](#)

Install the station protectors in line with the cable as it enters or exits a building. The station protectors should be permanently mounted in the building. See [Figure 17](#).

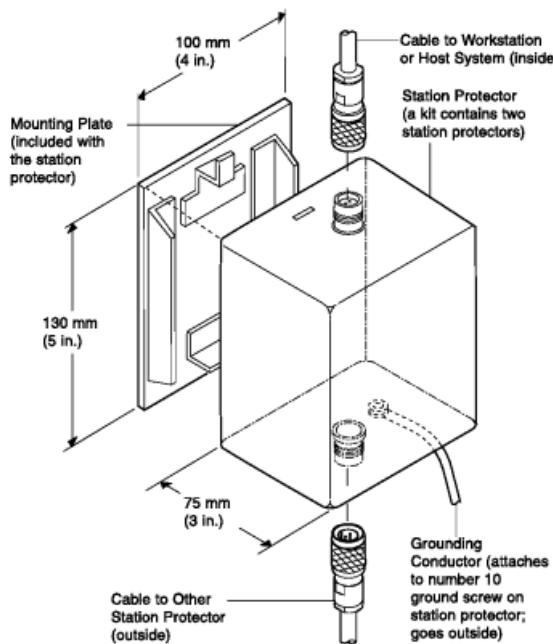


Figure 17. Station Protector Installation

Note: It is important that the grounding conductor be located on the same side of the station protector as the cable leading to the outside of the building.

The station protector is owned and maintained by you. Using a volt-ohmmeter (VOM), you can use the following procedures to check an IBM-supplied station protector. See [Figure 18](#) before beginning these procedures.

Disconnect the cables from the station protector before you make the checks. This disconnects the workstations from the system.

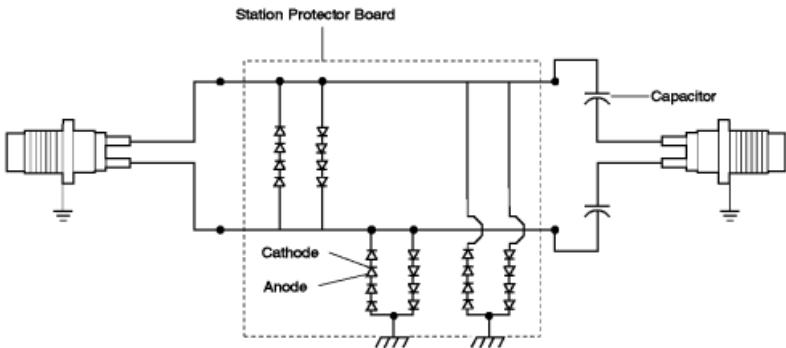


Figure 18. Station Protector Board

To check the diodes:

1. Check each diode with the negative (-) lead connected to the anode and the positive (+) lead connected to the cathode. The resistance should exceed 10 000 ohms.
2. Check each diode with the negative (-) lead connected to the cathode and the positive (+) lead connected to the anode. The resistance should be less than 2000 ohms.
3. Check for burned or damaged components.

To check the capacitors:

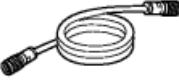
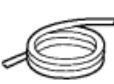
1. Before each reading, short the capacitors by placing a screwdriver or metal bar across the leads.
2. Set the VOM to R x 100K.
3. Touch the meter leads across the leads of a capacitor. There should be a noticeable instantaneous meter deflection (toward the 0 end of the scale) as the capacitor is charging up. Then the needle on the VOM will drop back to the high end of the scale.

If the deflection is present, the capacitor is good. No deflection indicates a defective capacitor. No deflection could also result from using a VOM set at a range that is too low.

3.5.3.3 Ordering Information

[Table 7](#) provides information for ordering twinaxial cable.

Table 7. Ordering Information for Twinaxial Cable

Part Name	Twinaxial Cable Indoor or Outdoor
Cable Assembly (cable in specified length with connectors at both ends)	IBM P/N 7362267 (with vinyl covering) IBM P/N 7362062 (with Teflon ** <u>(**)</u> covering) 
Adapter (cable-to-cable)	IBM P/N 7362230 Amphenol P/N 82-5588 
Bulk Cable (cable in specified length, without connectors)	IBM P/N 7362211 (with vinyl covering) IBM P/N 7362061 (with Teflon covering) IBM P/N 483619 <u>(5)</u> . (tubing used with Teflon-covered cables) 
Single Connector Kit (with one twinaxial cable connector) Double Connector Kit (with two twinaxial cable connectors)	IBM P/N 7362229 Amphenol P/N 82-5589 AMP 22724-1 IBM P/N 7362268 (for vinyl-covered cable) IBM P/N 7362063 (for Teflon-covered cable) 

(5) Two pieces of this tubing are included with a connector kit for Teflon-covered cables.

3.6 Telephone Twisted-Pair Cabling

As a cost-saving alternative to twinaxial cabling, consider using telephone twisted-pair (TTP) cabling. TTP cabling is the same type of wiring as that found in most commercial telephone installations. TTP cabling is used in conjunction with the IBM 5299 Terminal Multiconnector, which enables you to attach up to seven workstations to a single port on the 5494. It may also be used with the IBM 6299 Hub. Installation of TTP cabling is limited to wire conforming to IBM Type 3 specifications.

If you are considering TTP cabling as an alternative to twinaxial cabling, be aware that TTP cabling is subject to the following limitations:

- TTP cabling is susceptible to crosstalk and interference from local transmissions. Greater care must be taken to avoid running cables close to power lines or other communication lines, and to avoid looping or wrapping the cable around devices.
- TTP cabling does not accurately maintain communication signals over as great a distance as does twinaxial cabling.
- The maximum allowable cable lengths between the 5494 and the workstations are shorter for TTP than for twinaxial cabling.
- If a 5299 is used, the maximum allowable cable length between the 5494 and the 5299 is shorter if they are connected with TTP cable than if they are connected with twinaxial cable. These cable lengths are summarized in [Table 8](#).

Table 8. Comparison of Maximum TTP and Twinaxial Cable Lengths			
Connecting 5494 to 5299	5494 to workstation	5494 to 5299	Maximum length of TTP cable from 5299 to workstation
With TTP cable	304.8 m (1000 ft) TTP	304.8 m (1000 ft)	274.3 m (900 ft)
With twinaxial cable	609.6 m (2000 ft) twinaxial	609.6 m (2000 ft) twinaxial	274.3 m (900 ft)

Subtopics:

- [3.6.1 Twinaxial-to-Telephone Twisted-Pair Adapters](#)
- [3.6.2 IBM 5299 Terminal Multiconnector](#)

3.6.1 Twinaxial-to-Telephone Twisted-Pair Adapters

To use TTP cabling, you must use Twinaxial-to-Telephone Twisted-Pair Adapters (TTPAs). TTPAs connect directly to the ports on the Twinaxial Workstation Attachment cable connected to the back of the 5494, as well as to the sockets on the workstations, allowing the use of TTP cabling between. Use the host (beige) TTPA (IBM P/N 69X7883) illustrated in [Figure 19](#), to attach to the 5494. Use the workstation (black) TTPA (IBM P/N 96X6187) to attach to the workstation.

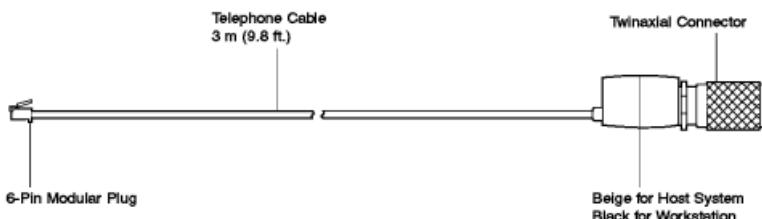


Figure 19. Twinaxial-to-Telephone Twisted-Pair Adapter (TTPA)

The cable-through option is not available with TTP cabling. This limits the number of workstations to one per port unless you use an IBM 5299 Terminal Multiconnector.

3.6.2 IBM 5299 Terminal Multiconnector

The 5299 allows you to attach more than one workstation per port when using TTP cabling. With the 5299, illustrated in [Figure 20](#), you can connect as many as seven workstations to a single port on the 5494. (The 5299 does not, however, increase the *total* number of workstations that can be attached to the 5494.) For more information about the use of TTP cabling and associated devices, refer to the *5299 Terminal Multiconnector Model 3 Planning, Installation, and Problem Analysis Guide*. [Figure 21](#) shows a sample configuration using a 5299.

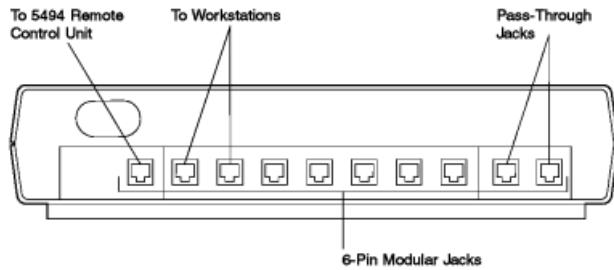
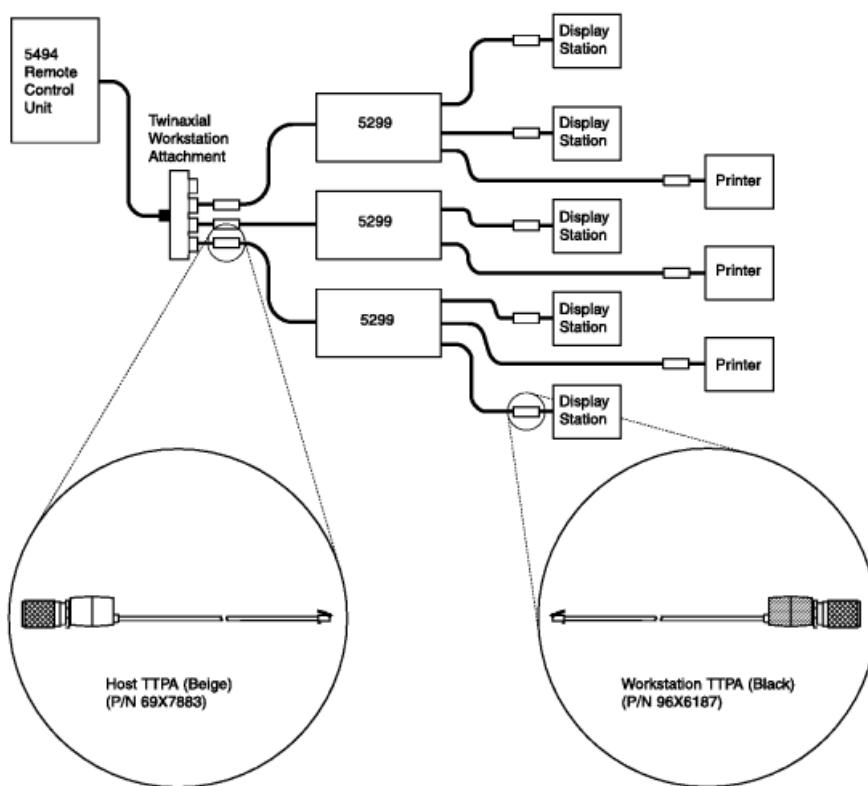


Figure 20. IBM 5299 Terminal Multiconnector



3.7 Preparing the Floor Plan

Your floor plan should be accurate and drawn to scale so you can determine the cable paths and cable lengths. The floor plan will be used by the person who sets up the 5494 and attached workstations.

Subtopics:

- [3.7.1 Drawing the Floor Plan](#)
 - [3.7.2 Drawing the Cable Paths](#)
 - [3.7.3 Determining the Cable Lengths](#)
-

3.7.1 Drawing the Floor Plan

To begin preparing the floor plan:

1. Find any existing floor plan you may have. If none is available, get some chart paper or plain paper to draw on.
2. Draw the layout of your office or offices from an aerial view. First draw the walls, doors, and windows. Then include the location of:
 - Desks, file cabinets, and other office equipment
 - Telephones
 - Power receptacles.

Identify each room with a name or number. You may also want to identify offices or work areas with individuals' names.

3. Add control units and workstations. Record each device type.
-

3.7.2 Drawing the Cable Paths

Consider the following requirements before drawing your cable paths:

- Each 5494 can have up to 2 Twinaxial Workstation Attachment cables with 4 twinaxial ports per cable. The 5494 supports as many as 56 twinaxial devices (5250 workstations with a maximum of 7 workstations attached to each port).

The 5494 with a 5494 LAN adapter installed supports as many as 80 devices with up to 56 devices attached through the Twinaxial Workstation Attachment and with the remainder (or all 80) attached through a LAN.

- Workstations with cable-through capability have two connectors for attaching cables. Before drawing a cable path between workstations, make sure that the workstations have two ports (sockets).
- If you are using twinaxial cabling, the last workstation on a cable-through line can be no more than 1524 m (5000 ft) in cable distance from the 5494.
- If you are using a 5299 with TTP cabling from the 5494 to the 5299 and TTP cabling from the 5299 to the workstations, no workstation can be more than 304.8 m (1000 ft) in cable distance from the 5494 and no more than 274.3 m (900 ft) between the 5299 and each workstation.
- If you are using a 5299 with twinaxial cabling from the 5494 to the 5299 and TTP cabling from the 5299 to the workstations, no workstation can be more than 609.6 m (2000 ft) in twinaxial cable distance from the 5494 and no more than 274.3 m (900 ft) of TTP between the 5299 and each workstation.
- If you are using the IBM Cabling System, the last workstation on a cable-through line can be no more than 1524 m (5000 ft) of type 1 or type 2 cable from your 5494. If there is type 6, 8, or 9 cable in the installation, see "[Computing Configuration Limits](#)" in topic [3.5.2](#) for information on how to calculate the maximum allowable cable length.

To draw the cable paths:

1. Draw the cable path from the first port of the 5494 to the first device (personal computer, display station, printer, or 5299) attached to it. Label this cable "Cable 1."

Note: If you have a 5299, you may need to follow additional cabling rules. Refer to the *5299 Terminal Multiconnector Model 3 Planning, Installation, and Problem Analysis Guide* for specific information.

2. Continue drawing cable paths to the remaining devices.

3.7.3 Determining the Cable Lengths

Before you can order workstation cables, you must know the required length of each cable.

To determine cable length:

1. Look at your floor plan to determine the cable path distances. Measure cable length from the connector of one device to the connector of the next. Be sure to consider the intended cable route, including diagonal and vertical cable runs.
2. If you have a raised floor, allow a minimum of 0.6 m (2 ft) at each end of a connection for slack in the cable.
3. Add 0.9 m (3 ft) for the connection to a workstation.

[Figure 22](#) shows the cable path distance between two attached display stations. In this example, the cable that needs to be ordered or assembled is 5.2 m (17 ft) long.

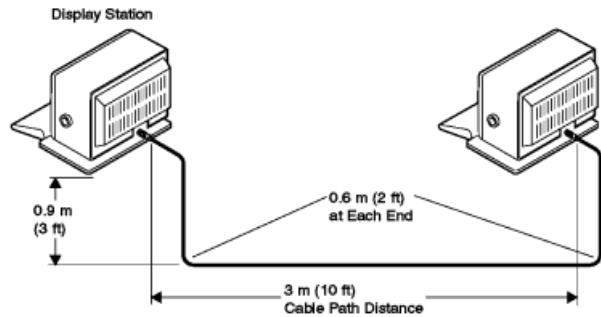


Figure 22. Cable Length for Cable 2

4. Allow enough cable to move the devices for servicing.

5. After you determine the length of each cable, record these lengths in a cabling schedule on the floor plan.

6. Review the final layout to make sure that:

- Cable lengths do not exceed limitations
- All devices have adequate clearances
- All cable path considerations have been reviewed.

7. Repeat these steps to attach devices to the other ports.

3.8 Completing the Remote Workstation Setup Worksheets

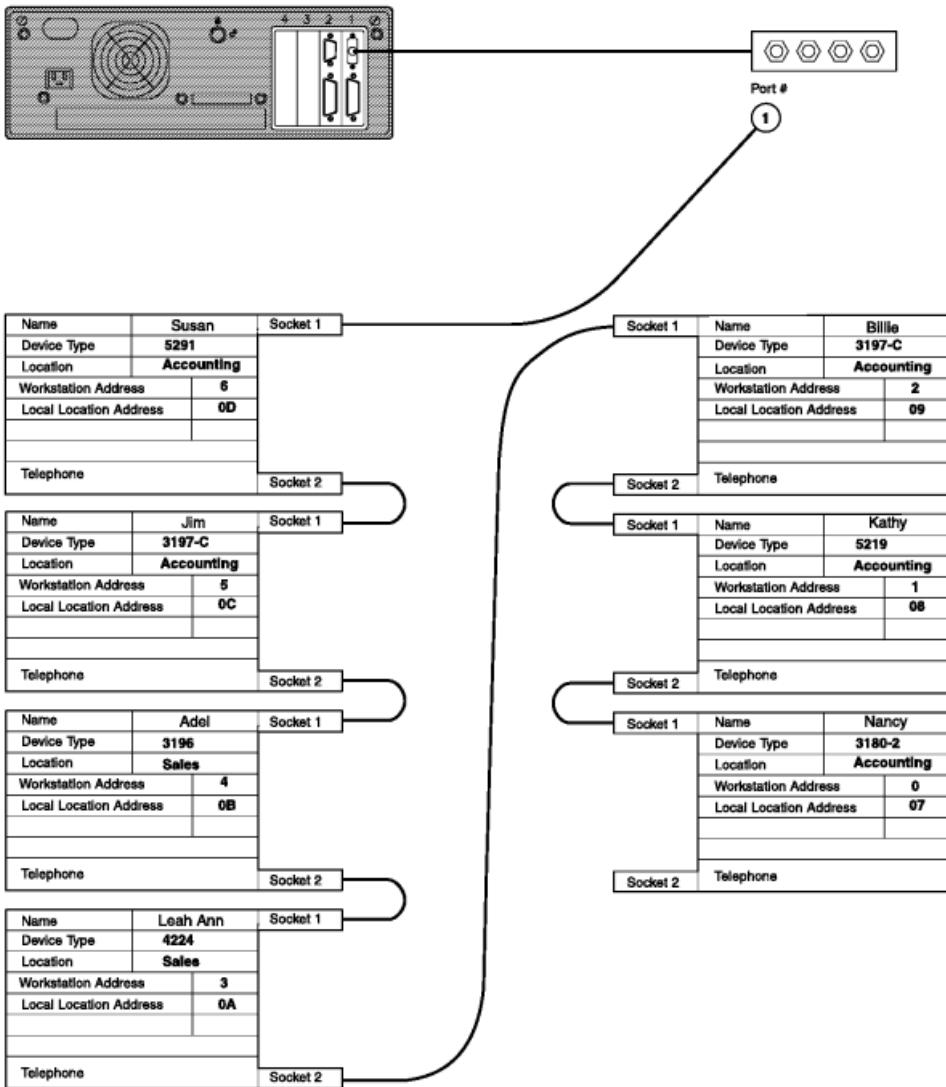
Before completing these worksheets, you need a floor plan of your site showing workstation placement and cabling. See "[Preparing the Floor Plan](#)" in topic [3.7](#) for a description of how to prepare a floor plan.

Make several copies of the blank Remote Workstation Setup Worksheet in topic [3.8](#). Complete a separate worksheet for each port of each 5494.

Refer to the sample worksheets as you read these instructions. The first example shows a configuration of seven workstations attached to port 1 of the 5494. The second example shows seven workstations attached to the 5494 through a 5299. The third example shows a configuration of seven workstations attached to the Twinaxial Expansion Kit on the 5494.

5494 Remote Workstation Setup Worksheet

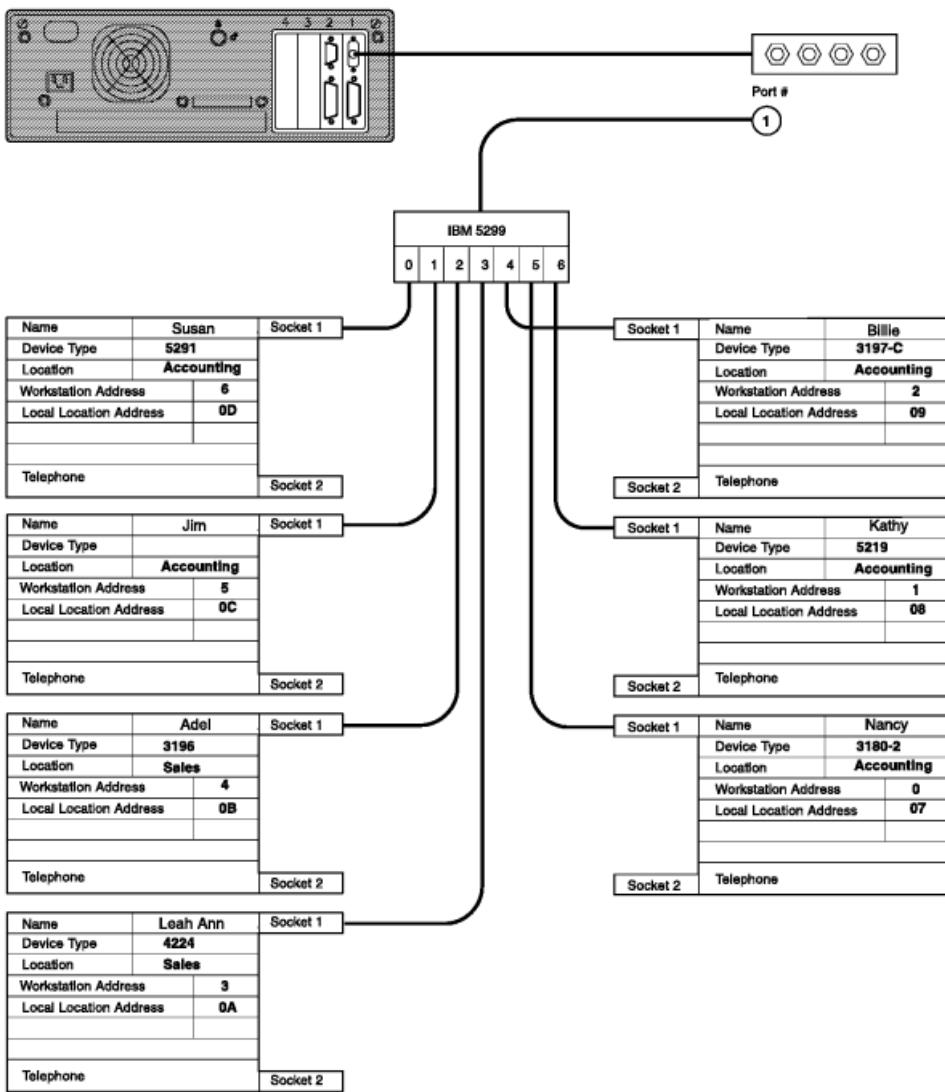
EXAMPLE 1



Note: Each cable connected to a 5494 port should have a tag with a number from 0 through 7. Each port used should have a cable. Connect each cable to the port indicated on its tag.

5494 Remote Workstation Setup Worksheet

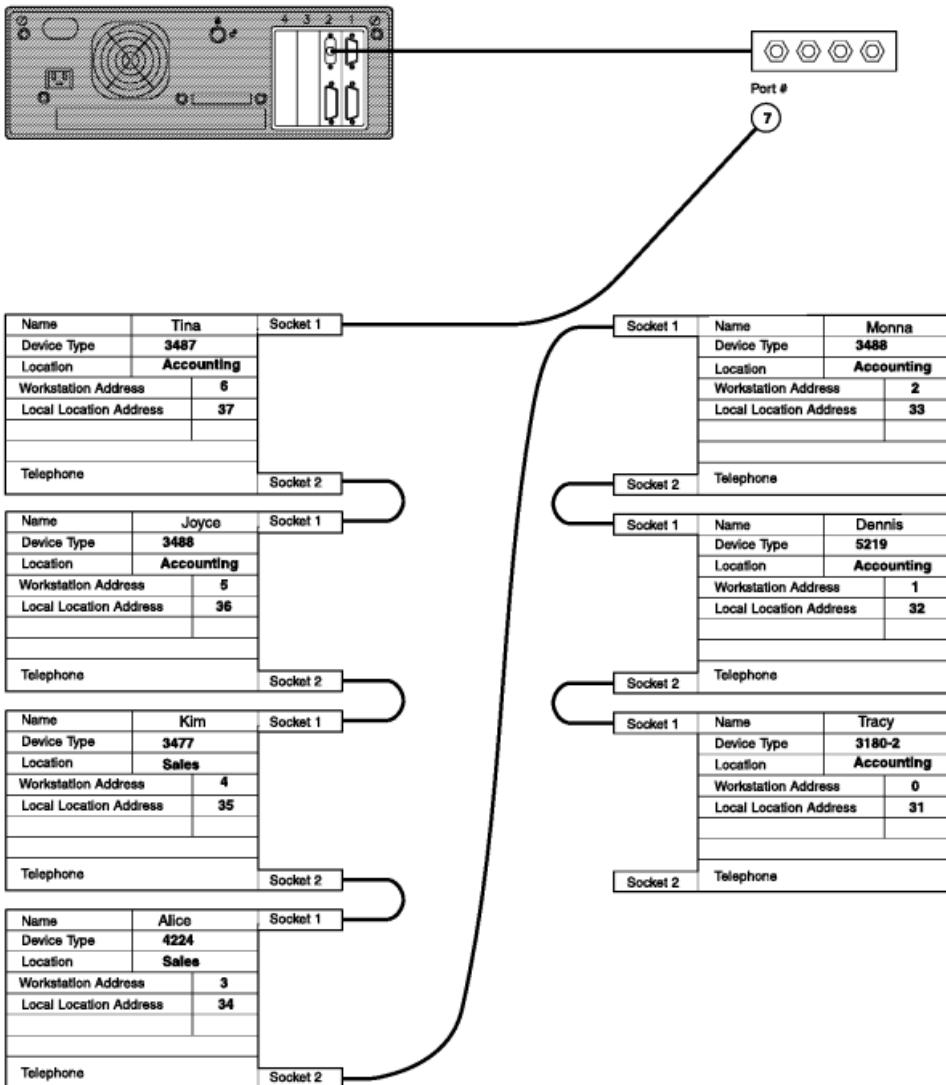
EXAMPLE 2



Note: Each cable connected to a 5494 port should have a tag with a number from 0 through 7. Each port used should have a cable. Connect each cable to the port indicated on its tag.

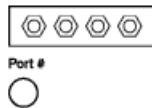
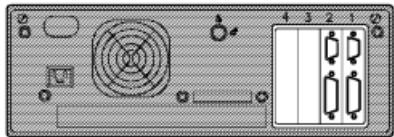
5494 Remote Workstation Setup Worksheet

EXAMPLE 3



Note: Each cable connected to a 5494 port should have a tag with a number from 0 through 7. Each port used should have a cable. Connect each cable to the port indicated on its tag.

5494 Remote Workstation Setup Worksheet



IBM 5299						
0	1	2	3	4	5	6

Name	Socket 1
Device Type	
Location	
Workstation Address	
Unit Address	
Telephone	Socket 2

Socket 1	Name	
Device Type		
Location		
Workstation Address		
Unit Address		
Telephone	Socket 2	

Name	Socket 1
Device Type	
Location	
Workstation Address	
Unit Address	
Telephone	Socket 2

Socket 1	Name	
Device Type		
Location		
Workstation Address		
Unit Address		
Telephone	Socket 2	

Name	Socket 1
Device Type	
Location	
Workstation Address	
Unit Address	
Telephone	Socket 2

Socket 1	Name	
Device Type		
Location		
Workstation Address		
Unit Address		
Telephone	Socket 2	

Name	Socket 1
Device Type	
Location	
Workstation Address	
Unit Address	
Telephone	Socket 2

Socket 1	Name	
Device Type		
Location		
Workstation Address		
Unit Address		
Telephone	Socket 2	

Note: Each cable connected to a 5494 port should have a tag with a number from 0 through 7. Each port used should have a cable. Connect each cable to the port indicated on its tag.

Figure 23. 5494 Remote Workstation Setup Worksheet

To complete each worksheet:

1. Write the number of the port you are configuring in the circle under Port #.

2. Each block on the worksheet represents an attached workstation. Refer to your floor plan for the correct cabling sequence, and draw lines indicating the order in which your workstations are attached, as follows:

a. If you are attaching a 5299, draw a line from the circled port number to the 5299 box below it. Then draw lines from each 5299 port to its attached workstations.

b. Draw a line from the circled port number to Socket 1 on the first block to indicate the first workstation attached to this port.

c. Draw another line from Socket 2 of this first block to Socket 1 of the next block to indicate the attachment of a second workstation.

d. Continue drawing lines to indicate the attachment of each workstation attached to this port.

Note: A 5494 supports as many as 56 workstations with as many as seven workstations attached to one port.

3. Fill in a block for each attached workstation. Begin with the last block to which a line is drawn. The following instructions will help you fill in the blocks:

a. **Name.** Write the name of the person responsible for operating this device.

b. **Device Type.** Write the manufacturer's name and model of the device.

c. **Location.** Write the department name or location of the device.

d. **Workstation Address.** Assign a different address to each workstation on a port. For example, if you have three devices on a port, number them 0, 1, and 2.

e. **Local Location Address.** The local location address is used by the AS/400 system to access each device and is part of the host computer configuration for each device. Use [Table 9 in topic 3.8.1](#) to determine the local location address for each device. For example, 0D is the local location address for the device at port 1 and workstation address 6. Each device must have its own unique local location address. Notice, however, that workstations on different ports can have the same workstation address but have different local location addresses.

f. **Telephone.** This is the workstation operator's telephone number. This person can report on the operational status of this device and can assist in problem determination.

Subtopics:

- [3.8.1 Assigning Local Location Addresses](#)

3.8.1 Assigning Local Location Addresses

Use [Table 9](#) to determine the local location address for each device. Ports 0-3 must be assigned to devices attached to the Host Twinaxial Adapter. Ports 4-7 are assigned to devices attached to the Twinaxial Expansion Adapter, when installed.

Table 9. Local Location Addresses

	Workstation Address						
	0	1	2	3	4	5	6
Port 0	00	01	02	03	04	05	06
Port 1	07	08	09	0A	0B	0C	0D
Port 2	0E	0F	10	11	12	13	14
Port 3	15	16	17	18	19	1A	1B
Port 4	1C	1D	1E	1F	20	21	22
Port 5	23	24	25	26	27	28	29
Port 6	2A	2B	2C	2D	2E	2F	30
Port 7	31	32	33	34	35	36	37

Note: If you are using a shared address display, the AS/400 system requires a configuration (CRTDEVDSP) for each session. The local location address is the same for all sessions. An additional parameter, a shared session number, defines each session. Select 0 for the base session and select 1, 2, or 3 for the shared sessions.

4.0 Topic 4. Planning Your Communication Network

This topic contains information you need to select system components and network facilities. Use the information in this topic to:

- Estimate the transmission speed you need for communication with your AS/400 system.
- Determine the token-ring speed (only when a Token-Ring Adapter is installed).
- Determine the Ethernet media type (only when an Ethernet Adapter is installed).
- Select network subscription options (X.25 and X.21 switched networks)
- Order your communication equipment: modems, DCEs, and token-ring or Ethernet communication equipment (if necessary).

Subtopics:

- [4.1 Estimating Transmission Speed for AS/400 Communication](#)
 - [4.2 Determining Token-Ring Speed](#)
 - [4.3 Determining the Ethernet Media Type](#)
 - [4.4 Selecting Network Subscription Options](#)
 - [4.5 Ordering Your Communication Equipment](#)
-

4.1 Estimating Transmission Speed for AS/400 Communication

You should estimate the total transmission speed that you need for your system before contacting your network representative. Use the following steps to estimate the total transmission speed required:

1. See [Table 10](#).

Estimate the transmission speed you need for the total number of workstations. For example, if you have 15 workstations with medium usage on a communication line, you need 9600 bps or higher. If you have more than one control unit on a multipoint communication line, include all the workstations attached to all the control units on that line.

- | If you are using the FR-TR Bridge and depending on your | applications, you may want to select a higher speed to achieve | satisfactory performance.
- Depending on your particular applications and their use, the network type and speed shown may or may not offer satisfactory performance.
- Instead of using a higher speed to achieve satisfactory performance, it may be more cost-effective to use two or more communication lines at lower speeds.
- If your workstations are attached to three or more workstation control units that are all multipointed on the same communications line, the next higher transmission speed may be required due to the overhead of multipoint operation.

2. See [Table 11](#).

Estimate the transmission speed you need for each printer. Add the transmission speeds needed for each printer to find the total transmission speed required for all printers. For example, if you have a 5219 Model D01 (400 bps) and a 5256 Model 3 (1200 bps), you need a transmission speed of 1600 bps.

The transmission speed may need to be increased to achieve the rated throughput for the printers, if you plan to attach and use printers on the communication lines at the same time that the personal computers or display stations are in maximum use.

3. Add the number in step [1](#) to the number in step [2](#) to find your total estimated transmission speed.

4. See [Table 12](#) for the data transmission speed available for each 5494 physical interface. Make sure that your total transmission speed does not exceed these limits.

5. Use this information to order your modems or DCEs as described under ["Ordering Your Communication Equipment" in topic 4.5](#).

Table 10. Transmission Speeds for Workstations			
Number of Workstations per Communication Line	Transmission Speed Required		
	Light Usage	Medium Usage	Heavy Usage
1 to 5	2400 bps	2400 or 4800 bps	2400 or 4800 bps
6 to 10	2400 or 4800 bps	4800 or 9600 bps	9600 bps or higher
11 to 15	4800 or 9600 bps	9600 bps or higher	19 200 bps or higher
16 to 28	9600 bps	19 200 bps or higher	48 000 bps or higher
29 to 40	19 200 bps	38 400 bps or higher	64 000 bps or higher
41 to 56	38 400 bps	64 000 bps or higher	128 000 bps(1) or higher
57 to 80	64 000 bps	128 000 bps	128 000 bps(1) or higher

Note:

- (1) Transmission speeds higher than 128 000 bps are available using token-ring or Ethernet.

Table 11. Transmission Speeds for Printers

Transmission Speed Required	Printer Throughput Rate (Characters per Second or Lines per Minute)
400 bps	40 characters per second
600 bps	60 characters per second
800 bps	80 characters per second
1200 bps	120 characters per second
2000 bps	200 characters per second
4000 bps	400 characters per second
3750 bps	375 characters per second
4800 bps	480 characters per second
6000 bps	600 characters per second
3080 bps	140 lines per minute
5280 bps	240 lines per minute
6160 bps	280 lines per minute
8800 bps	400 lines per minute
9020 bps	410 lines per minute
10 560 bps	480 lines per minute
10 780 bps	490 lines per minute
12 320 bps	560 lines per minute
13 750 bps	625 lines per minute
17 600 bps	800 lines per minute
21 120 bps	960 lines per minute
26 400 bps	1200 lines per minute
30 800 bps	1400 lines per minute

Notes:

1. This table is based on 132 characters per line for printers rated in lines per minute.
2. Modem and system turnaround time are not reflected in this table.

Table 12. Available Data Transmission Speeds

Physical Interface	Transmission Speed Available
EIA 232D (CCITT V.24/V.28)	2400 bps to 19 200 bps
CCITT V.35	2400 bps to 128 Kbps
CCITT X.21	2400 bps to 128 Kbps
Token-Ring	4 Mbps or 16 Mbps
Ethernet	10 Mbps

4.2 Determining Token-Ring Speed

You must determine the token-ring speed if you are using a 5494 with a 5494 Token-Ring Adapter installed. The token-ring speed is either 4 Mbps or 16 Mbps. All devices on the token-ring network must be set to the same speed. Your token-ring network planner should provide this information. The 5494 default token-ring speed is 4 Mbps. You can change the speed to 16 Mbps during setup.

4.3 Determining the Ethernet Media Type

You must determine the Ethernet media type if you are using a 5494 with a 5494 Ethernet Adapter installed. The Ethernet media type can be 10BASE-T unshielded twisted pair (UTP), 10BASE2 thin coaxial, or 10BASE5 attachment unit interface (AUI) thick coaxial media. Your LAN network planner should provide this information. The 5494 default Ethernet media type is 10BASE-T. You can change the media type to 10BASE2 or 10BASE5 during setup.

4.4 Selecting Network Subscription Options

This section provides information on the basic characteristics of 5494 support for X.25, X.21 switched, and frame relay networks. Use this information to determine your subscription parameters.

This section also shows the optional facilities supported by the 5494. All of these facilities may not be available from your network. You can also use other facilities if they do not require any special support from your 5494. Contact your network supplier to determine the facilities that are available.

Subtopics:

- [4.4.1 X.25 Network Support](#)
 - [4.4.2 X.21 Switched Network Support](#)
 - [4.4.3 Frame Relay Network Support](#)
 - [4.4.4 Frame Relay Token-Ring Bridge Support](#)
-

4.4.1 X.25 Network Support

The following are the basic characteristics of 5494 support for X.25:

- 1980, 1984, and 1988 CCITT Recommendation X.25
- Link level LAP-B
- Data terminal equipment (DTE) role
- Permanent virtual circuit (PVC)

- Switched virtual circuit (SVC)
- Automatic or manual (operator-controlled) link establishment
- Modulo 8 or modulo 128 packet sequence numbering
- Packet sizes of 64, 128, 256, 512, and 1024
- Qualified logical link control (QLLC)
- Enhanced logical link control (ELLC)
- No data transfer on logical channel 0
- Transmission of optimal minimum number of packets through automatic adjustment of request/response unit (RU) size based on packet size
- Only one active channel in multi-channel subscriptions, with data on inactive channels not processed.

The 5494 supports the following X.25 network optional facilities:

- The following facilities are supported for an agreed-upon period of time:

- Priority traffic
- Throughput class negotiation
- One-way logical channel outgoing
- One-way logical channel incoming
- Incoming calls barred
- Outgoing calls barred
- Closed user group
- Reverse charge acceptance
- Extended packet sequence numbering
- Flow control parameter negotiation
- Nonstandard default packet sizes
- Nonstandard default window sizes
- Local charging prevention
- Network user identifier
- Hunt group
- Call redirection
- Called line address modified notification
- Call redirection or deflection notification
- Recognized Private Operating Agency (RPOA) selection.

- The following facilities are supported on a per-call basis:

- Reverse charging
- Closed user group selection

- Throughput class negotiation
 - Transit delay selection and indication
 - Calling and called DTE address extension
 - Priority
 - Flow control parameter negotiation.
-

4.4.2 X.21 Switched Network Support

The following are the basic characteristics of 5494 support for X.21 switched:

- 1980, 1984, and 1988 CCITT X.21 Recommendation
- Automatic unattended answer
- Operator-controlled address call
- Operator-controlled online subscription change
- Short-hold mode (SHM) for automatically disconnecting and preserving sessions when the line is inactive, then reconnecting when activity resumes.

The 5494 supports the following X.21 switched network optional facilities:

- Abbreviated address calling
 - Charge transfer
 - Closed user group
 - Closed user group with outgoing access
 - Direct call
 - Incoming calls barred
 - Outgoing calls barred
 - Registration or cancelation of user facilities
 - Redirection of call
 - RPOA selection.
-

4.4.3 Frame Relay Network Support

The basic characteristics of 5494 support for Frame Relay are:

- | SNA Direct as described in Request For Comments (RFC) 1490 (used for all non-bridged SNA communication with the AS/400).
- | Bridged 802.5 as described in RFC 1490 (used for all bridged communication with the bridge partner).
- Support for the following link management interface (LMI) options:
 - ANSI T1.617 Annex D
 - CCITT Q.933 Annex A
 - No LMI

The first two use DLCI 0 as the virtual circuit for communications with the network.

- A maximum of 64 PVCs (DLCIs) configured on the network link between
 - | the 5494 and the ALS. For AS/400 attachment, the 5494 looks at a maximum of 64 DLCIs exchanged between it and the frame handler, but
 - | only one can be active at a time. For bridged traffic, the 5494 will
 - | support up to four active DLCIs. DLCIs for AS/400 attachment and for
 - | bridged traffic are configured on the 5494, and must all be unique.

| 4.4.4 Frame Relay Token-Ring Bridge Support

| The 5494 supports bridging of source-routed token-ring frames over a frame relay network. The basic characteristics of this support are:

- | Frame relay support as described in "[Frame Relay Network Support](#)" in [topic 4.4.3](#).
- | The frame relay connection is treated as a virtual LAN. MAC addresses are assigned to both ends of the DLCI.
- | The 5494 uses a single ring number (configurable) for all frame relay connections.
- | The 5494 supports a bridged frame size of 1500 bytes.
- | The 5494 supports both automatic and manual spanning tree protocol.
- | The 5494 supports a maximum of 7 hops for bridged frames.
- | The 5494 supports bridge filtering.
- | The 5494 allows you to configure a link speed for the frame relay and token-ring connections that is used for prioritizing bridges in the Spanning Tree Protocol.

| See [Topic 8, "Planning for a Frame Relay Token-Ring \(FR-TR\) Bridge"](#) in [topic 8.0](#).

| **Note:** You must install the 5494 Memory Expansion Feature in order to use the Frame Relay Token-Ring Bridge feature.

4.5 Ordering Your Communication Equipment

If you are communicating with your AS/400 system through an analog communication network, the 5494 and the AS/400 system are attached to the communication line through modems. If you are using a digital network, the 5494 and the AS/400 system are attached to the network through DCEs.

Note: If you are using the 5494 with a 5494 LAN adapter installed in a LAN Gateway configuration, you need a modem or DCE to attach to a communication line.

Your network may provide you with modems or DCEs. If not, your network supplier should give you information for ordering this equipment.

Subtopics:

- [4.5.1 Modems](#)
 - [4.5.2 DCEs](#)
 - [4.5.3 LAN Communication Equipment](#)
-

4.5.1 Modems

When ordering a modem, select a transmission speed that is greater than the total transmission speed you estimated in ["Estimating Transmission Speed for AS/400 Communication" in topic 4.1](#). If you use lower speeds, your remote installation performance may decrease noticeably. Higher transmission speeds provide greater throughput.

Make sure the remote site modem is compatible with the AS/400 system modem. For example, both modems must transmit at the same speed and use the same mode of transmission.

If you are purchasing a modem, or your network supplier is providing it for you, you must consider the following:

- The transmit and receive clocking must be provided by the modem.
- For modems that operate in duplex or half-duplex mode, set the modem for request-to-send (RTS) controlled by the 5494. A constant ready-for-sending (RFS) from the modem is not allowed.
- It is recommended that the modem have a carrier controlled by RTS (switched carrier). You can use a modem with continuous carrier only if the 5494 is attached to a point-to-point duplex communication line. (For point-to-point duplex lines, the 5494 has RTS on continuously and continuous carrier is not usually required.)
- The signal ground is connected to the 5494 frame ground. Therefore, the signal ground should not be connected to the frame ground in the modem.
- If local loopback is available on your modem, it must operate as follows:

- Local loopback must be initiated by EIA 232D interface pin 18.
- Data set ready (DSR) must be on while the local loopback test is running.
- If you have a switched-line modem, it must operate as follows:
 - Auto-answer must be controlled by data terminal ready (DTR) or connect data set to line (CDSTL) only.
 - EIA 232D interface pin 22 (calling indicator) must have EIA 232D signal levels.
- If you are using V.25 bis auto-dial, your modem must support and be set for:
 - V.25 bis addressed call
 - Synchronous bit-oriented format for exchanging messages
 - Incoming call indication on EIA 232D interface pin 22 (calling indicator).
- The modem you select may not be approved for direct attachment to your network. Contact your network supplier to determine if you need an external data coupler.

[Table 13](#) provides additional information on some supported IBM modems. For a complete list of supported IBM modems, see "[Modems and DCEs](#)" in topic [1.4.5](#).

Table 13. Modem Information					
IBM Modem	Maximum Line Speed (bps)	Interface	Duplex Support	Line Support (Switched or Leased)	Multipoint Support
3833-1	2400	EIA 232D/V.24	Half/full	Leased	Yes
3834-1	4800	EIA 232D/V.24	Half/full	Leased	Yes
3863-1	2400	EIA 232D/V.24	Half/full	Leased	Yes
3863-2	2400	EIA 232D/V.24	Half	Switched	No
3864-1	4800	EIA 232D/V.24	Half/full	Leased	Yes
3864-2	4800	EIA 232D/V.24	Half	Switched	No
3865-1	9600	EIA 232D/V.24	Half/full	Leased	No
3865-2	9600	EIA 232D/V.24	Half/full	Leased	Yes
3868-1	2400	EIA 232D/V.24	Half/full	Leased	Yes
3868-2	4800	EIA 232D/V.24	Half/full	Leased	Yes
3868-3	9600	EIA 232D/V.24	Half/full	Leased	No
3868-4	9600	EIA 232D/V.24	Half/full	Leased	Yes
3872-1	2400	EIA 232D/V.24	Half/full	Both	Yes
3874	4800	EIA 232D/V.24	Half/full	Both	Yes
5811-10,18	19 200	EIA 232D/V.24	Half/full	Leased	Yes
5811-20,28	19 200	EIA 232D/V.24	Half/full	Leased	Yes

5812-10,18	19 200	EIA 232D/V.24	Half/full	Leased	Yes
5821-10 (DSU/CSU)	19 200 56 000	EIA 232D/V.24 V.35	Full	Leased	Yes
5822-10 (DSU/CSU)	19 200 56 000	EIA 232D/V.24 V.35	Full	Leased	Yes
5842-1	2400	EIA 232D/V.24	Full	Switched	No
5853-1	2400	EIA 232D/V.24	Full	Switched (V.25 bis auto-call)	No
5858	2400	EIA 232D/V.24	Full	Switched (V.25 bis auto-call)	No
5865-1,2,3	9600	EIA 232D/V.24	Half/full	Leased	Yes
5866-1,2,3	14 400	EIA 232D/V.24	Half/full	Leased	Yes
5868-51,52	9600	EIA 232D/V.24	Half/full	Leased	Yes
5868-61,62	14 400	EIA 232D/V.24	Half/full	Leased	Yes
7855-10	12 000	EIA 232D/V.24	Full	Both (V.25 bis auto-call)	No
7861	19 200	EIA 232D/V.24	Half/full	Leased	Yes
7868	19 200	EIA 232D/V.24	Half/full	Leased	Yes

4.5.2 DCEs

Request the following DCE options from your network supplier:

- The signal ground is connected to the 5494 frame ground. Therefore, the signal ground should not be connected to the frame ground in the DCE.
- If local loopback is available on your DCE, it must operate as follows:
 - Local loopback must be initiated by EIA 232D interface pin 18.
 - DSR must be on while the local loopback test is running.
- If an option is available that causes the transmitted data to be looped back on the receive data lines, and the selection is controlled by a DCE front panel switch, select that option.

4.5.3 LAN Communication Equipment

LAN communication equipment includes items such as multistation access units, hubs, bridges, and repeaters. For information on planning your local area network, refer to the appropriate publication in ["Related Publications" in topic PREFACE.3](#).

5.0 Topic 5. Preparing the Configuration Worksheets

This topic provides a step-by-step guide for completing the configuration worksheets. The worksheets are as follows:

- Network Information Worksheet (recommended).

The Network Information Worksheet is used to list the network IDs and connection numbers required for communication between the AS/400 systems and the 5494.

- AS/400 Communication Worksheets (recommended).

The AS/400 Communication Worksheets are used to select the connection parameters you need for communication with your AS/400 system. An AS/400 communication worksheet exists for each supported type of host connection.

- Token-Ring Gateway Worksheet (recommended if you are using a token-ring network to attach workstations to the 5494).

The Token-Ring Gateway Worksheet is used to select your gateway parameters for the token-ring network you use to attach workstations to the 5494. This worksheet is not needed if you do not plan to use a token-ring network to attach workstations to the 5494.

- Ethernet Gateway Worksheet (recommended if you are using an Ethernet network to attach workstations to the 5494).

The Ethernet Gateway Worksheet is used to select your gateway parameters for the Ethernet network you use to attach workstations to the 5494. This worksheet is not needed if you do not plan to use an Ethernet network to attach workstations to the 5494.

- Keyboard Translation Worksheet (recommended if you are attaching 5250 workstations to the 5494).

The Keyboard Translation Worksheet allows you to select a keyboard language for each workstation address. When you identify a 5250 workstation with a workstation address, the 5494 uses the keyboard language code you selected for that address. This worksheet is not needed if you do not plan to use 5250 display stations.

- | Frame Relay Token-Ring (FR-TR) Bridge Worksheet (recommended if you
| are using a frame relay network to bridge token-ring frames).

| The FR-TR Bridge worksheet allows you to list the characteristics of
| the bridge for Frame Relay Token-Ring Bridging. This worksheet is not
| needed if you do not plan to use FR-TR Bridging.

Configuration using the worksheets is recommended, but not required. If you are not using the worksheets, refer to the *5494 Remote Control Unit User's Guide* for more information.

The worksheets you complete depend on the physical interface and line type you use for your AS/400 system connection. See [Table 14](#) to determine which worksheets you need. Before you begin, make copies of a blank

worksheets. [Appendix E](#) provides an index to the location of all blank

worksheets. Samples of completed worksheets are provided in [Appendix C](#) and [Appendix D](#).

When all worksheets are completed, continue with [Topic 6, "Preparing the Network Link Establishment Worksheet."](#)

Notes:

1. [Appendix B, "Configuring the AS/400 for Communication with the 5494"](#) provides AS/400 configuration information.

2. [Appendix C, "System Configuration Examples"](#) provides sample system parameters and sample diagrams that illustrate how to connect the 5494 to the AS/400 system.

Table 14. Selecting the Appropriate Configuration Worksheet		
Interface to the AS/400 System	Line Type	Complete These Worksheets
EIA 232D (CCITT V.24/V.28) or CCITT V.35	Switched or leased	<ul style="list-style-type: none">◦ "Network Information Worksheet" in topic 5.3◦ "AS/400 Communication Worksheet--SDLC" in topic 5.4◦ One of the LAN Gateway Worksheets in topic 5.10 (optional)◦ "Keyboard Translation Worksheet" in topic 5.11 (optional)
CCITT X.21 bis (V.24/V.28 or V.35) or CCITT X.21	X.25 packet-switched public data network	<ul style="list-style-type: none">◦ "Network Information Worksheet" in topic 5.3◦ "AS/400 Communication Worksheet--X.25" in topic 5.7◦ One of the LAN Gateway Worksheets in topic 5.10 (optional)◦ "Keyboard Translation Worksheet" in topic 5.11 (optional)
CCITT X.21	X.21 data network switched	<ul style="list-style-type: none">◦ "Network Information Worksheet" in topic 5.3◦ "AS/400 Communication Worksheet--X.21 Switched" in topic 5.5◦ One of the LAN Gateway Worksheets in topic 5.10 (optional)◦ "Keyboard Translation Worksheet" in topic 5.11 (optional)
CCITT X.21 bis (V.24/V.28 or V.35) or CCITT X.21	X.21 data network leased	<ul style="list-style-type: none">◦ "Network Information Worksheet" in topic 5.3◦ "AS/400 Communication Worksheet--X.21 Leased" in topic 5.6◦ One of the LAN Gateway Worksheets in topic 5.10 (optional)◦ "Keyboard Translation Worksheet" in topic 5.11 (optional)
Token-Ring	Token-Ring	<ul style="list-style-type: none">◦ "Network Information Worksheet" in topic 5.3◦ "AS/400 Communication Worksheet--Token-Ring" in topic 5.9.1◦ "Keyboard Translation Worksheet" in topic 5.11 (optional)
Ethernet	Ethernet	<ul style="list-style-type: none">◦ "Network Information Worksheet" in topic 5.3◦ "AS/400 Communication Worksheet--Ethernet" in topic 5.9.2

		<ul style="list-style-type: none"> • "Keyboard Translation Worksheet" in topic 5.11 (optional)
CCITT X.21 or CCITT V.35	Frame Relay Network	<ul style="list-style-type: none"> • "Network Information Worksheet" in topic 5.3 • "AS/400 Communication Worksheet--Frame Relay" in topic 5.8 • One of the LAN Gateway Worksheets in topic 5.10 (optional) • "Keyboard Translation Worksheet" in topic 5.11 (optional) • "Frame Relay Token-Ring Bridge Worksheet" in topic 5.12 (optional)

Subtopics:

- [5.1 Naming Your APPC and RWS Controller Descriptions](#)
- [5.2 Automatically Configuring Your AS/400 System](#)
- [5.3 Network Information Worksheet](#)
- [5.4 AS/400 Communication Worksheet--SDLC](#)
- [5.5 AS/400 Communication Worksheet--X.21 Switched](#)
- [5.6 AS/400 Communication Worksheet--X.21 Leased](#)
- [5.7 AS/400 Communication Worksheet--X.25](#)
- [5.8 AS/400 Communication Worksheet--Frame Relay](#)
- [5.9 AS/400 Communication Worksheets--LAN](#)
- [5.10 LAN Gateway Worksheets](#)
- [5.11 Keyboard Translation Worksheet](#)
- [5.12 Frame Relay Token-Ring Bridge Worksheet](#)

5.1 Naming Your APPC and RWS Controller Descriptions

The AS/400 panels do not show a connection between the advanced program-to-program communications (APPC) controller description and the remote workstation (RWS) controller description. To assist the operator when monitoring the system, it is recommended that (in addition to meaningful text descriptions) the names of these objects be related. A suggestion is to name the APPC controller the same as the 5494's LU name and to name the RWS controller the same, plus a suffix like "RWS" or "RMT". For example, if the 5494 LU name is NYCTL, name the APPC controller NYCTL and name the RWS controller either NYCTLRWS or NYCTLRMT. For more examples concerning system configuration, refer to [Appendix B, "Configuring the AS/400 for Communication with the 5494,"](#) and [Appendix C, "System Configuration Examples."](#)

5.2 Automatically Configuring Your AS/400 System

The AS/400 system supports the automatic configuration of an APPC controller when using a token-ring, Ethernet, or frame relay connection. When using this support, the name of the controller is the same as the 5494 LU name.

When using OS/400 Version 3 Release 1 or later, auto-configuration of the RWS controller and all attached displays and printers is supported for all protocols. The system value QAUTORMT enables auto-configuration of the RWS controllers for the system. The default value is OFF, but CHGSYSVAL can be used to enable the support. The parameter AUTOCRTDEV in the RWS controller description enables the auto-configuration of attached displays and printers. The default is *ALL.

Refer to *AS/400 Remote Workstation Support* for a complete description of the naming conventions used. If you want different names, you may rename the RWS controller description and the device descriptions after they have been automatically created.

5.3 Network Information Worksheet

Complete this worksheet with the parameters for one to four AS/400 systems you plan to configure into the 5494.

See ["Instructions for Completing the Network Information Worksheet" in topic 5.3.1.](#)

[Table 15](#) summarizes the AS/400 configuration parameters for which matching values must be specified when you configure the 5494.

Table 15. Matching Configuration Parameters			
5494 Configuration Parameters	Field Number on NWS screen	AS/400 Configuration Parameters(4)	Refer to the following comma to display or create the 5494 configuration parameter
5494 Logical unit (LU) name	Field 12	Remote location name(1 (RMTLOCNAME)	DSPCTL0 or CRTCTLRWS
5494 Control point (CP) name	Field 13	Remote control point(1 (RMTCPNAME)(5)	DSPCTL0 or CRTCTLRAPP0
AS/400 LU name	Field Hx:1(2)	Local location (LCLLOCNAME)	DSPCTL0 or CRTCTLRWS(3)
AS/400 network ID	Field Hx:2(2)	Local network ID (LCLNETID)	DSPNETA
5494 network ID	Field Hx:3(2)	Remote network ID (RMTNETID)	DSPCTL0 or CRTCTLRWS(3)
AS/400 mode name	Field Hx:4(2)	Mode Name (MODD)	DSPMODD

Notes:

1. The remote location name (RMTLOCNAME) and the remote control point (RMTCPNAME) should be the same. If they are not the same, you might need an entry in the Remote Configuration List. Refer to AS/400 documentation for details.
2. For alternate AS/400 systems, the Hx can be replaced with H1, H2, H3, or H4.
3. If the AS/400 controller description (RWS or APPC) LCLLOCNAME or RMTNETID value is *NETATR, refer to **DSPNETA**.
4. When you are viewing AS/400 configuration panels, parameters that include the term *local* refer to the AS/400 system and parameters that include the term *remote* refer to the 5494.
5. If the 5494 is attached through an APPN network or an SNA Subarea network, the 5494 CP name is defined in its ALS. If the 5494's ALS is an AS/400 system, then the 5494 CP name is defined in that system's APPC controller description.

Network Information Worksheet	
5494 location	
A Default network ID	NWS Field Name 11
B 5494 logical unit (LU) name	12
C 5494 control point (CP) name	
D Default mode name	13
E 5494 connection number	14
F Logical connection retry	

parameters		
F1 Retry counter		15
F2 Retry interval		
F3 Continuous retry	16	
G 5494 identification	16	
G1 Serial number		
G2 System password	16	
G3 ID number		
H Primary AS/400 System	17	
I Concurrent host information		
I1 Concurrent host attachment	18	
I2 Printer timeout	19	
J Synchronize date and time with primary AS/400	20	
	21	
	22	
	23	
<hr/>		
AS/400 System Information (Required for primary AS/400 system):		
	AS/400 System 1 (H1)	AS/400 System 2 (H2)
K AS/400 LU name	H1:1	H2:1
L AS/400 network ID	H1:2	H2:2
M 5494 network ID	H1:3	H2:3
N Mode name		
O Connection number	H1:4	H2:4
P Controller Session Parameters	H1:5	H2:5
P1 Initiation	H1:11	H2:11
P2 Disconnect Request	H1:11	H2:11
	<hr/>	<hr/>
	AS/400 System 3 (H3)	AS/400 System 4 (H4)
K AS/400 LU name	H3:1	H4:1
L AS/400 network ID	H3:2	H4:2
M 5494 network ID	H3:3	H4:3
N Mode name		
O Connection number	H3:4	H4:4
P Controller Session Parameters	H3:5	H4:5
P1 Initiation	H3:11	H4:11
P2 Disconnect Request	H3:11	H4:11
	<hr/>	<hr/>
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation.		

Subtopics:

- [5.3.1 Instructions for Completing the Network Information Worksheet](#)
-

5.3.1 Instructions for Completing the Network Information Worksheet

A

Enter the default network ID. The default network ID is used only when the AS/400 network ID (Hx:2) or 5494 network ID (Hx:3) is left blank. Valid characters are 0 to 9, uppercase A to Z, \$, #, and @. The entry is limited to 8 characters.

B

Enter the logical unit (LU) name of the 5494. Valid characters are 0 to 9, uppercase A to Z, \$, #, and @. The entry is limited to 8 characters. **The entry for this field must match the remote location name (RMTLOCNAME) defined in the AS/400 system.**

To display the remote location name (RMTLOCNAME) on the AS/400 system, type **DSPCTLID** on the command line, and enter the RWS controller name.

C

Enter the control point (CP) name of the 5494. Valid characters are 0 to 9, uppercase A to Z, \$, #, and @. The entry is limited to 8 characters. If the adjacent link station (ALS) is an AS/400 system, the entry for this field must match the remote control point name (RMTCPNAME) defined in the AS/400 system. If the 5494 LU name and the 5494 CP name are not the same, you may need an entry in the AS/400 Remote Configuration List. Refer to AS/400 documentation for details.

To display the remote control point (RMTCPNAME) on the AS/400 system, type **DSPCTLID** on the command line, and enter the APPC controller name.

D

Enter the default mode name used by the 5494. The default mode name is used only when the AS/400 system mode name (Hx:4) is left blank. Valid characters are 0 to 9, uppercase A to Z, \$, #, and @. The entry is limited to 8 characters. The default value is QRMTWSC. The default mode, QRMTWSC, is an IBM-supplied mode on OS/400 Version 2 Release 2 and later releases. It allows a maximum of 28 nonprogrammable workstations in Version 2 Release 2, and 56 nonprogrammable workstations in later releases.

Note: If the mode QRMTWSC was configured on your system for 28 device support, installing OS/400 Version 2 Release 3 or a later release will not automatically change the maximum workstations supported by the mode to 56.

To display the mode name (MODD) on the AS/400 system, type **DSPMODD** on the command line.

To change the mode (QRMTWSC) to support 56 devices, type the following command:

```
CHGMODD MODD(QRMTWSC) MAXSSN(57) MAXCNV(57) LCLCTLSSN(56)
```

If you are using OS/400 Version 2 Release 1.1, you can create this mode name on your AS/400 system with the following command:

E

Enter one of the following values for the 5494 connection number:

- For **SDLC leased, SDLC switched (except V.25 bis), X.21 leased, or frame relay**, no entry is required.
- For **SDLC switched using V.25 bis auto-dial**, enter the telephone number of the 5494. Valid characters are 0 to 9. The entry is limited to 14 characters.

Note: No entry is needed if you do not want to have your 5494 telephone number included in an outgoing call request and your network does not require it.

- For **X.25**, enter the network address of the 5494. Valid characters are 0 to 9. The entry is limited to 15 characters.

Note: No entry is needed if you do not want to have your 5494 network address included in an outgoing call request and your network does not require it.

- For **X.21 switched**, enter the telephone number of the 5494. Valid characters are 0 to 9. The entry is limited from 4 to 14 characters. This number must be the full international number including the network ID or the country code, but not including any additional access codes. These access codes are entered on the AS/400 Communication Worksheet--X.21 Switched. The 5494 connection number is required for all X.21 switched connections.

- For **Token-Ring**, do one of the following:

- | Use the permanent (Universal) address on the adapter.

| **Note:** When you are configuring from a device attached to an active 5494, the permanent address is displayed when you select it. You can always display the permanent address from the Op Panel of the 5494 by pressing REQ, typing 216, and pressing Enter.

- Enter a token-ring address of the 5494. Valid characters are 0 to 9 and uppercase A to F. The entry is limited to 12 characters. The first four character positions must contain X'4000'.

- For **Ethernet**, do one of the following:

- | Use the permanent (Universal) address on the adapter.

|

Notes:

- | When you are configuring from a device attached to an active 5494, the permanent address is displayed when you

| select it. You can always display the permanent address
| from the Op Panel of the 5494 by pressing REQ, typing
| 216, and pressing Enter.

- | The Ethernet permanent address is displayed in
| token-ring format.
- Enter the Ethernet address of the 5494. Valid characters are 0 to 9 and uppercase A to F. You can enter the Ethernet address in two alternative formats:

Ethernet canonical format

The first four character positions must contain X'0200'.

Token-Ring format

The first four character positions must contain X'4000'.

The 5494 supports both address formats to ease the task of configuring the 5494. For Ethernet AS/400 attachment, the remote Ethernet adapter address in the AS/400 APPC controller is entered in Ethernet canonical format. The 5494's address may be entered in canonical format to match the AS/400 system. Alternatively, when configuring a PWS to communicate through the 5494 in an Ethernet Gateway configuration, some PWSs require the address of the 5494 be entered in token-ring format. The address may be entered in the 5494 in token-ring format to match the PWS.

The 5494 uses a locally administered address as the default value rather than the universally administered address encoded on the 5494 Ethernet Adapter. This default value is 02005494E000. If you select the token-ring format, the default address is 40005494E000.

F

Enter the following information used by the 5494 to reestablish the 5494 session with the AS/400 system:

F1

Enter the number of retries that the 5494 should make to reestablish a logical connection. Valid entries are 0 to 255. The default value is 10.

F2

Enter the time (in 10-second increments) between retries. Valid entries are 1 to 60 (10 seconds to 10 minutes). The default value is 6 (1 minute).

Note: If the retry interval expires and the connection with the AS/400 system has not been completed, the 5494 aborts the current connection attempt and starts a new one. It is possible to set the retry interval to such a small value that the connection with your AS/400 system cannot be completed within the retry interval. The value you select should take into consideration the topology and loading of your communication network.

F3

Enter a value to select logical connection continuous retries. Valid values are YES and NO. The default value is YES for X.25 PVC only, Token-Ring, Ethernet, SDLC leased, and X.21 leased. Otherwise the default value is NO.

Recommendation:

If you use PWRDWNSYS or ENDSYS on your AS/400 system such that your AS/400 system is unavailable for extended periods of time, continuous retries allow your AS/400 communications to be reestablished automatically without operator intervention.

G

Enter the following information used by the 5494 when establishing sessions with the AS/400 system:

G1

Enter the 5494 serial number. This number is located on the front of the 5494. Valid characters are 0 to 9 and uppercase A to Z. This number is sent to the AS/400 system when establishing sessions and identifies this 5494 to the AS/400 system. If no serial number is provided, zeros are used.

G2

Enter the system password. Providing a password allows a PWS using the 5494 Utility Program to reset (restart) the 5494 without accessing the power switch. It also allows a PWS to access 5494 diagnostic information or modify configuration without entering a request code (REQ290) on the 5494 keypad.

The password can be configured using an NWS or PWS. The entry is limited to between 1 and 8 characters. Valid characters are 0 to 9, uppercase A to Z, \$, #, and @. If lowercase characters are entered, they are converted to uppercase. The default value is blanks, indicating that the password protected functions are not permitted, and access of the 5494 diagnostic information requires an access code to be entered at the 5494 keypad.

Note: Embedded blanks are not allowed. A blank in the field after other valid characters will terminate the field. A blank in the first position causes the entire field to be set to blanks, disabling the system reset function.

G3

Enter the 5494 ID number. This ID number is sent in the block ID field of the exchange identifier (XID) when the host link is established. The entry is limited to 5 characters. Valid characters are 0 to 9, uppercase A to F, and *. The default value is *.

Note: When * is entered, the ID number for token-ring, Ethernet, or frame relay is 00000. For other protocols, the 5494 uses 000xx where xx is the 5494's station address.

H

Enter the AS/400 system number of your primary host. Valid values are 1 to 4. For configurations that are not using concurrent host attachment (see field I), this is the number of the AS/400 system the 5494 attempts to contact after initial start up.

If you are using concurrent host attachment, then the primary host is the host the 5494 attempts to contact first. It is also the only host from which the 5494 will accept code correction files (AS/400 PTFs for the 5494).

Note: In 5494 releases prior to Release 3.1, AS/400 system 1 was always the primary host.

I

Using concurrent host attachment, the 5494 can communicate with one to four AS/400 systems concurrently over a single data link level connection. This allows different NWSs attached to the same 5494 to communicate with any of the configured AS/400 systems. NWSs that support multiple addresses or shared addresses (3489 for example) can have each session with a different host.

Note: The first time you use Release 3.1 in your 5494, the default host for each display will be the 5494's primary host. This is the host that provides the sign-on screen when the display powers on. The default host can be changed by the display operator. See the *IBM 5494 Remote Control Unit User's Guide* for information on setting a different default host or changing the current host for the display. Printers can process jobs from any configured AS/400 system. This is called printer sharing. If you want your printer to only process jobs from one AS/400 system, the printer sharing function can be disabled.

I1

Enter **YES** to use concurrent host attachment to communicate with more than one AS/400 system at a time. Enter **NO** to communicate with only one AS/400 system at a time.

I2

Enter the value in seconds for the 5494 to wait after one AS/400 system finishes with a printer before allowing the printer to switch to a different AS/400 system. An AS/400 system is finished with a printer when the writer for that printer is ended. Valid values are 0, 30-600 seconds. The default value of 0 disables printer sharing. With printer sharing disabled, each printer can be assigned to only one of the configured AS/400 systems.

AS/400

System Information (H1, H2, H3, H4) You must complete this section for the primary AS/400 system selected for entry H. Completing other sections for additional AS/400 systems allows you to store this information so that you can alternately or concurrently connect the 5494 to other AS/400 systems.

| J

Would you like the 5494 date and time set to the same values as the primary host? This setting helps coordinate entries in the AS/400 and 5494 error logs. Enter **YES** to have the 5494 set its date and time to the primary host values whenever it establishes a session with the primary host.

K

Enter the LU name of the AS/400 system. Valid characters are 0 to 9, uppercase A to Z, \$, #, and @. The entry is limited to 8 characters. **This field must match the local location name (LCLLOCNAME) defined in the AS/400 system.**

To display the local location name (LCLLOCNAME) on the AS/400 system, type **DSPCTL**D on the command line and enter the RWS controller name.

If the value for the local location name is *NETATR, then the value you need is located in the network attributes. Type **DSPNETA** on the command line to display the network attributes.

L

Enter the network ID of the network to which the AS/400 system is attached. Valid characters are 0 to 9, uppercase A to Z, \$, #, and @. The entry is limited to 8 characters. This is an optional field. If this field is left blank, the 5494 uses the default network ID listed in field A. **This field must match the local network ID (LCLNETID) defined in the AS/400 system.**

To display the local network ID (LCLNETID) on the AS/400 system, type **DSPNETA** on the command line.

Note: When using concurrent host attachment, the fully qualified AS/400 system name (AS/400 Network ID combined with AS/400 LU Name) must be unique for each host configured.

M

Enter the network ID of the network to which the 5494 is attached when it communicates with this AS/400 system. This should be the same as the network ID used by the ALS. The ALS is the AS/400 system or the adjacent node with which you are directly communicating. Valid characters are 0 to 9, uppercase A to Z, \$, #, and @. The entry is limited to 8 characters. This is an optional field. If this field is left blank, the 5494 uses the default network ID listed in field **A**. **This field must match the remote network ID (RMTNETID) assigned to the 5494 in the AS/400 system.**

To display the remote network ID (RMTNETID) on the AS/400 system, type **DSPCTLQ** on the command line and enter the RWS controller name.

If the value for the remote network ID is *NETADR, then the value you need is located in the network attributes. Type **DSPNETA** on the command line to display the network attributes.

N

Enter the mode name for communication with this AS/400 system. Valid characters are 0 to 9, uppercase A to Z, \$, #, and @. The entry is limited to 8 characters. This is an optional field. If this field is left blank, the 5494 uses the default mode name listed in field **D** when it communicates with this AS/400 system. **This field must match a mode name (MODD) defined in the AS/400 system.**

To display all mode names (MODD) defined on the AS/400 system, type **WRKMODD** on the command line.

O

Enter one of the following values for the AS/400 connection number:

Notes:

1. If you are communicating with your AS/400 system through an SNA subarea network or an APPN network, the AS/400 connection number is the number of the adjacent link station (ALS) through which you access the network.
2. This number may be the same for all four hosts if you access all four hosts through the same ALS. On the other hand, this number may be different for all four hosts if, for example, you are using token-ring AS/400 communication and all four hosts are attached to the token ring. Keep in mind that the 5494 uses the link level information (including the AS/400 connection number) from the primary host to establish the link level connection to the ALS. If you change the primary host, the 5494 uses the link level information for the new primary host.

- For **SDLC leased, SDLC switched (except V.25 bis), X.21 leased, or frame relay**, no entry is required.
- For **SDLC switched using V.25 bis auto-dial**, enter the telephone number to access the AS/400 system. Include any additional characters necessary for establishing the call, such as wait tone (:), pause (<), separators (= and >), pulse mode (P), tone | mode (T), and flash (&). Semicolon (;) is also valid to access | certain networks. Refer to your V.25 bis modem documentation | for details on the use of these characters. Valid characters | are 0 to 9, :, <, =, >, P, T, &, and ;. The entry is limited to 64 characters.

Note: If you intend to initiate calls from the 5494, an entry is required here.

- For **X.25**, enter the network address to access AS/400 system. Valid characters are 0 to 9. The entry is limited to 15 characters.

Note: If you intend to initiate SVC calls from the 5494 or want to verify incoming SVC calls using the network address, an entry is required here.

- For **X.21 switched**, valid entries are:
 - For **address call**, enter the telephone number to access this AS/400 system. This number must be the full international number including the network ID or the country code, but not including any additional access codes. These access codes are entered on the AS/400 Communication Worksheet--X.21 Switched. Valid characters are 0 to 9. The entry is limited from 4 to 14 characters.
 - For **direct call**, enter **DC** in the first two field positions. The 5494 does not use dial digits in calling the AS/400 system. The network has a preconfigured number as part of a direct call facility subscription.

Note: If you intend to initiate calls from the 5494, an entry is required here.

- For **Token-Ring**, enter the Token-Ring address used to access this AS/400 system. Valid characters are 0 to 9 and A to F. The entry is limited to 12 characters.

To display the adapter address (ADPTADR) on the AS/400 system, type **DSPLIND** on the command line, and enter the line name.

- For **Ethernet**, enter the Ethernet address for accessing this AS/400 system. Valid characters are 0 to 9 and uppercase A to F. The Ethernet address may be entered in two formats:

Ethernet canonical format

The first four characters must contain X'0200'.

Token-Ring format

The first four characters must contain X'4000'.

The 5494 supports both address formats to facilitate configuring the 5494. For Ethernet AS/400 attachment, the remote Ethernet adapter address in the AS/400 APPC controller is entered in Ethernet canonical format. The 5494's address may be entered in canonical format to match the AS/400. Alternatively, when configuring a PWS to communicate through the 5494 in an Ethernet Gateway configuration, some PWSs require the address of the 5494 be entered in token-ring format. The address may be entered in the 5494 in token-ring format to match the PWS.

To display the adapter address (ADPTADR) on the AS/400 system, type **DSPLIND** on the command line, and enter the line name.

P

The 5494 must establish a controller session with an AS/400 system before any NWS can begin to communicate with that AS/400 system. This controller session remains active while NWS communication with the AS/400 system is taking place.

The AS/400 system may be configured to send a disconnect request to the 5494 when no more devices are communicating with it. The 5494 can choose to terminate the controller session when it receives the disconnect request from the AS/400 system.

The following parameters allow you to designate when you would like the 5494 to initiate and terminate the controller session.

P1

Do you want the 5494 to initiate the controller session with this AS/400 system immediately after the communication link becomes active?

If you select Yes:

The 5494 attempts to establish the controller session with this host when the communication link becomes active (whether or not any NWSs or PWSs wish to communicate with this host).

If you select No and you are not using concurrent host attachment:

The 5494 attempts to establish the controller session when the first NWS or PWS is powered on (provided this host is the currently selected host).

If you select No and you are using concurrent host attachment:

If this host is designated as the primary host, the 5494 attempts to establish the controller session when the first NWS or PWS is powered on.

If this host is an alternate host (not primary), the 5494 attempts to establish the controller session when the first display requests a session with this host. If printer sharing is being used, powering on a printer does not initiate a controller session to an alternate host. However, the printer may be shared with any host that has a controller session active.

The default value is No. All 5494 releases prior to Release 3.1 perform as if this value is No.

P2

Do you want the 5494 to accept the request from the AS/400 system to disconnect the controller session?

The AS/400 system sends this request when it has no more active sessions, the display is configured for Drop line at signoff, and the RWS controller description is configured for Switched disconnect = *YES (Version 3 Release 1 or later releases). Also, the AS/400 system sends this request when the last device powers off and the RWS controller description is configured for Switched disconnect = *YES.

If you select IGNORE:

The 5494 ignores the request to terminate the controller session. The 5494 does not terminate the controller session unless an error occurs on that session or the 5494 is varied off.

If you select ACCEPT and you are not using concurrent host attachment:

The 5494 terminates the controller session when there are no NWSs or PWSs active.

If you select ACCEPT and you are using concurrent host attachment:

If this host is designated as the primary host, the 5494 terminates this controller session when there are no active controller sessions for any alternate hosts and there are no active PWSs. If this host is an alternate host, the 5494 terminates the controller session immediately upon receipt of the disconnect request.

The default value is ACCEPT. All 5494 releases prior to Release 3.1 perform as if this value is ACCEPT.

Considerations:

1. Because the settings of P1 and P2 affect whether an idle controller session is terminated or maintained, the cost of maintaining that idle session should be considered. If there is cost associated with an idle connection, for example the session goes over an SDLC switched line somewhere in the network, the values of No and Accept, for P1 and P2 respectively, can allow that link to be terminated when the last user signs off. Parameters in the AS/400 system, such as Switched disconnect in the APPC controller

description, Switched disconnect in the RWS controller description, and Drop line at signoff in the device description, also affect the link termination. Refer to the AS/400 system documentation for more information about these parameters.

2. Values of Yes and Ignore, for P1 and P2 respectively, are particularly useful if you are using concurrent host attachment and there is currently no NWS communicating with this host. By using Yes and Ignore, you can avoid delays associated with establishing the controller session when a user switches to this host or when an NWS powers on with this host as its default. Depending on network delays, it can take up to 2 minutes to establish a controller session.

3. A value of Ignore for the Disconnect Request can be used to prevent the status of this APPC controller description and RWS controller description on the AS/400 system from going to Vary On Pending when every user signs off or powers off their display. A value of Ignore will cause both the APPC and RWS controller descriptions to stay active.

The Network Information Worksheet is complete. Return to [Table 14 in topic 5.0](#) to determine which additional worksheets you must complete.

5.4 AS/400 Communication Worksheet--SDLC

Complete this worksheet for SDLC communication.

Where applicable, the valid entries or range of entries are shown in parentheses. Default values (if any) are shown in bold. See ["Instructions for Completing the AS/400 Communication Worksheet--SDLC" in topic 5.4.1.](#)

AS/400 Communication Worksheet--SDLC	
5494 location	<u> </u>
Fill in the blank or circle/underline the appropriate choice:	
A	5494 SDLC station address (01 - FE) <u> </u>
B	Line and modem or DCE configuration information:
B1	Line type (leased , switched, or switched/V.25 bis)
B2	Line facility (half-duplex or full-duplex)
B3	Connection type (multipoint or point-to-point)
B4	Data encoding (NRZI or NRZ)
B5	Connection method (DTR or CDSTL)
B6	Send leading pad (No or Yes)
B7	Local loopback support (No or Yes)
C	V.25 bis auto-dial connection time-out in seconds (1 - 255, 60) <u> </u>
D	Token-Ring Gateway support:
D1	Are you using token-ring to attach workstations? (No or Yes)
D2	What is your token-ring speed? (4 Mbps or 16 Mbps)
E	Ethernet Gateway support:
E1	Are you using Ethernet to attach workstations? (No or Yes)
E2	What is your Ethernet media type? (10BASE-T, 10BASE2, or 10BASE5)
E3	What is your Ethernet frame format? (IEEE 802.3 or DIX Version 2.0)

Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.

Subtopics:

- [5.4.1 Instructions for Completing the AS/400 Communication Worksheet--SDLC](#)
-

5.4.1 Instructions for Completing the AS/400 Communication Worksheet--SDLC

A

Enter the SDLC station address of your 5494. Valid entries are hexadecimal values X'01' to X'FE'. This must be the same as the address used by the adjacent link station (ALS) to identify this 5494. The ALS is the AS/400 system or the adjacent node with which you are directly communicating.

B

Circle the appropriate choice on lines **B1** through **B7**. Refer to your modem documentation, contact your modem supplier, or contact your network supplier for assistance in answering the following questions:

B1

Is your line leased, switched, or switched and you are using a V.25 bis auto-dial modem?

B2

Is your modem set to half-duplex or full-duplex?

B3

Is your communication line multipoint or point-to-point?

Notes:

1. If you are using a modem that provides DTE interface fan-in/fan-out (such as the IBM 5865 Model 3), and you are using a point-to-point line to attach several 5494s to your ALS, circle **multipoint**.

2. If your modem is set to full-duplex and you are selecting point-to-point for field **B3**, your modem must be configured to provide a constant clear to send (CTS) signal. This signal is also known as ready-for-sending (RFS). The 5494 sets request-to-send (RTS) permanently on in this configuration.

B4

Does your modem documentation recommend nonreturn-to-zero inverted (NRZI) or nonreturn-to-zero (NRZ) data encoding? This must match the configuration information for NRZI or NRZ at the ALS. If no recommendation is made, circle **NRZI**.

B5

For switched lines, does your modem use interface pin 20 (signal 108) for data terminal ready (DTR) (signal 108.2) or connect data set to line (CDSTL) (signal 108.1)?

Notes:

1. If you selected leased or V.25 bis auto-dial switched for field **B1**, select DTR for field **B5**.

2. In the U.S.A. and Canada, select DTR for field **B5**.

B6

Does your modem require a leading pad prior to the SDLC flag? This must match the configuration at the ALS.

Note: For modems or DCEs that require a leading pad character for synchronization, leading pad transmitted should be used with NRZI mode.

B7

Does your modem support local loopback initiated by interface pin 18?

C

If you selected V.25 bis auto-dial switched for field **B1**, enter the maximum number of seconds allowed to establish a call connection when using V.25 bis. Valid entries are 1 to 255. The default value is 60.

D

Token-Ring Gateway support:

D1

Are you attaching workstations to the 5494 using the Token-Ring Gateway configuration?

D2

If you are using a Token-Ring Gateway, what is your token-ring speed? Valid choices are 4 Mbps or 16 Mbps. The person who sets up your 5494 needs to know this speed in order to set up the 5494 correctly. If this is not the same person as the one who will configure the 5494, make sure this information is given to the correct person.

E

Ethernet Gateway support:

E1

Are you attaching workstations to the 5494 using the Ethernet Gateway configuration?

E2

If you are using Ethernet Gateway, what is your media type? Valid choices are 10BASE-T, 10BASE2, and 10BASE5. The person who sets up your 5494 needs to know the media type in order to set up the 5494 correctly. If this is not the same person as the one who will configure the 5494, make sure this information is given to the correct person.

E3

If you are using Ethernet Gateway, what is your frame format? Valid choices are IEEE 802.3 and DIX Version 2.0.

The AS/400 Communication Worksheet--SDLC is complete. Return to [Table 14 in topic 5.0](#) to determine which additional worksheets you must complete.

5.5 AS/400 Communication Worksheet--X.21 Switched

Complete this worksheet for X.21 switched communication.

Where applicable, the valid entries or range of entries are shown in parentheses. Default values (if any) are shown in bold. See "[Instructions for Completing the AS/400 Communication Worksheet--X.21 Switched](#)" in topic [5.5.1](#).

AS/400 Communication Worksheet--X.21 Switched	
5494 location _____	
Fill in the blank or circle/underline the appropriate choice:	
A	5494 SDLC station address (01 - FE) _____
B	Access code _____
C	Dial digit format (0 - 15, 4) _____
Fill in the blank or circle/underline the appropriate choice if you are using Short Hold mode:	
D	Short Hold mode (SHM) retries:
D1	Number of retries (0 - 255, 5) _____
D2	Seconds between retries (1 - 15, 6) _____
D3	Retry of optional call progress signals: _____, _____, _____, _____, _____, _____, _____, _____.
D4	Direct call support: H1 AS/400 system 1 (No or Yes) H2 AS/400 system 2 (No or Yes) H3 AS/400 system 3 (No or Yes) H4 AS/400 system 4 (No or Yes)
E	Token-Ring Gateway support: E1 Are you using token-ring to attach workstations? (No or Yes) E2 What is your token-ring speed? (4 Mbps or 16 Mbps)
F	Ethernet Gateway support: F1 Are you using Ethernet to attach workstations? (No or Yes) F2 What is your Ethernet media type? (10BASE-T, 10BASE2, or 10BASE5) F3 What is your Ethernet frame format? (IEEE 802.3 or DIX Version 2.0)
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.	

Subtopics:

- [5.5.1 Instructions for Completing the AS/400 Communication Worksheet--X.21 Switched](#)

5.5.1 Instructions for Completing the AS/400 Communication Worksheet--X.21 Switched

A

Once the switched circuit is established, the 5494 uses SDLC for data transmission. Enter the SDLC station address of your 5494. Valid entries are hexadecimal values X'01' to X'FE'. This must be the same as the address used by the adjacent link station (ALS) to identify this 5494. The ALS is the AS/400 system or the adjacent node with which you are directly communicating.

B

Enter your international access code. This access code is used to prefix the connection number when making a call. Valid entries are 0 to 999. This field can be left blank if an access code is not required.

C

The dial digit format is used to determine if a call is local. This field is the number of digits that the 5494 considers to be the area code or country code portion of the connection number. If a call is placed to an AS/400 system with the same area code or country code as the 5494, then a local call is assumed and the 5494 discards the area code or country code digits.

Specify the length, in decimal, of the area code or country code. If using the data network identification code (DNIC), enter 4. If using data country code (DCC), enter 3. DNIC format consists of a four-digit network ID, followed by a network terminal number. DCC format consists of a three-digit country code, followed by a national number. The default value is 4 (DNIC).

D

Enter the following information used by the 5494 to do Short Hold mode (SHM) retries. You do not need to enter information if SHM is not used.

D1

Enter the number of retries that you want your 5494 to make to reestablish the link to the ALS during SHM operations. Valid entries are 0 to 255. The default value is 5. Your network supplier may impose restrictions on this value.

D2

Enter the number of seconds that the 5494 waits between retry attempts during SHM. Valid entries are 1 to 15. This value may also be restricted by your network supplier to limit network congestion. The default value is 6. To limit call collisions and provide faster reconnections, make sure that the time between retries on your 5494 is not the same as the time between retries on your ALS.

D3

During SHM link reestablishment, the 5494 automatically retries all 2x and 6x call progress signals (CPSs) received from the network using the parameters specified in fields **D1** and **D2**. The 5494 can retry other CPSs. You can specify retries of up to eight optional CPSs. See [Table 16](#) for the CPSs that can be optionally retried. Because 2x and 6x codes are automatically retried, they are not included in this table.

Check your network requirements before you enter these codes. Enter up to eight codes in field **D3**.

Table 16. Optional Call Progress Signals	
Code	Significance
01	Terminal called
02	Redirected call
03	Connect when free
04	Private network reached

05	Public network reached
41	Access barred
42	Changed number
43	Not obtainable
44	Out of order
45	Controlled not ready
46	Uncontrolled not ready
47	DCE power off
48	Facility request not valid
49	Network fault in local loop
51	Call information service
52	Incompatible user class of service
71	Long-term network congestion
72	RPOA out of order

D4

For each of your AS/400 systems (H1 to H4), circle **Yes** if the 5494 will use direct call to initiate SHM reconnection. Circle **No** if the 5494 will use dial digits to reestablish the link.

Note: You have defined one to four AS/400 systems in fields **H1** to **H4** on the Network Information Worksheet.

E

Token-Ring Gateway support:

E1

Are you attaching workstations to the 5494 using the Token-Ring Gateway configuration?

E2

If you are using the Token-Ring Gateway, what is your token-ring speed? Valid choices are 4 Mbps or 16 Mbps. The person who sets up your 5494 needs to know this speed in order to set up the 5494 correctly. If this is not the same person as the one who will configure the 5494, make sure this information is given to the correct person.

F

Ethernet Gateway support:

F1

Are you attaching workstations to the 5494 using the Ethernet Gateway configuration?

F2

If you are using Ethernet Gateway, what is your media type? Valid choices are 10BASE-T, 10BASE2, and 10BASE5. The person who sets up your 5494 needs to know the media type in order to set up the 5494 correctly. If this is not the same person as the one who will configure the 5494, make sure this information is given to the correct person.

F3

If you are using Ethernet Gateway, what is your frame format? Valid choices are IEEE 802.3 and DIX Version 2.0.

The AS/400 Communication Worksheet--X.21 Switched is complete. Return to [Table 14 in topic 5.0](#) to determine which additional worksheets you must complete.

5.6 AS/400 Communication Worksheet--X.21 Leased

Complete this worksheet for X.21 leased communication.

Where applicable, the valid entries or range of entries are shown in parentheses. Default values (if any) are shown in bold. See "[Instructions for Completing the AS/400 Communication Worksheet--X.21 Leased](#)" in topic 5.6.1.

AS/400 Communication Worksheet--X.21 Leased	
5494 location _____	
Fill in the blank or circle/underline the appropriate choice. For X.21 leased communication, some of these parameters have only one choice.	
A	5494 SDLC station address (01 - FE) _____
B	Line and modem or DCE configuration information:
B1	Line type (leased)
B2	Line facility (full-duplex)
B3	Connection type (multipoint or point-to-point)
B4	Data encoding (NRZ)
B5	Connection method (DTR)
B6	Send leading pad (No)
B7	Local loopback support (No)
C	Token-Ring Gateway support:
C1	Are you using token-ring to attach workstations? (No or Yes)
C2	What is your token-ring speed? (4 Mbps or 16 Mbps)
D	Ethernet Gateway support:
D1	Are you using Ethernet to attach workstations? (No or Yes)
D2	What is your Ethernet media type? (10BASE-T, 10BASE2, or 10BASE5)
D3	What is your Ethernet frame format? (IEEE 802.3 or DIX Version 2.0)
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.	

Subtopics:

- [5.6.1 Instructions for Completing the AS/400 Communication Worksheet--X.21 Leased](#)
-

5.6.1 Instructions for Completing the AS/400 Communication Worksheet--X.21 Leased

A

Enter the SDLC station address of your 5494. Valid entries are hexadecimal values X'01' to X'FE'. This must be the same as the address used by the adjacent link station (ALS) to identify this 5494. The ALS is the AS/400 system or the adjacent node with which you are directly communicating.

B

Circle the appropriate choice in fields **B1** through **B7**. Most of the following entries only have one choice for X.21 leased communication:

B1

Leased is the only valid line type for X.21 leased communication. If you are using X.21 switched communication, go to ["Instructions for Completing the AS/400 Communication Worksheet--X.21 Switched" in topic 5.5.1.](#)

B2

Full-duplex is the only line facility valid for X.21 leased communication.

B3

Is your communication line multipoint or point-to-point?

B4

Only NRZ data encoding is valid for X.21 leased communication.

B5

DTR is the only valid connection method for X.21 leased communication.

B6

No leading pad is required for X.21 leased communication.

B7

No local loopback is supported for X.21 leased communication.

C

Token-Ring Gateway support:

C1

Are you attaching workstations to the 5494 using the Token-Ring Gateway configuration?

C2

If you are using Token-Ring Gateway, what is your token-ring speed? Valid choices are 4 Mbps or 16 Mbps. The person who sets up your 5494 needs to know this speed in order to set up the 5494 correctly. If this is not the same person as the one who will configure the 5494, make sure this information is given to the correct person.

D

Ethernet Gateway support:

D1

Are you attaching workstations to the 5494 using the Ethernet Gateway configuration?

D2

If you are using Ethernet Gateway, what is your media type? Valid choices are 10BASE-T, 10BASE2, and 10BASE5. The person who sets up your 5494 needs to know the media type in order to set up the 5494 correctly. If this is not the same person as the one who will configure the 5494, make sure this information is given to the correct person.

D3

If you are using Ethernet Gateway, what is your frame format? Valid choices are IEEE 802.3 and DIX Version 2.0.

The AS/400 Communication Worksheet--X.21 Leased is complete. Return to [Table 14 in topic 5.0](#) to determine which additional worksheets you must complete.

5.7 AS/400 Communication Worksheet--X.25

Complete this worksheet for X.25 communication.

Where applicable, the valid entries or range of entries are shown in parentheses. Default values (if any) are shown in bold. See "[Instructions for Completing the AS/400 Communication Worksheet-X.25](#)" in topic 5.7.1.

AS/400 Communication Worksheet--X.25	
5494 location	_____
Fill in the blank or circle/underline the appropriate choice:	
A	5494 station address (01 - FE) _____
B	Packet level sequence numbering (modulo 8 or modulo 128)
C	Packet window size (2 - 15) _____
D	Link window size (1 - 7) _____
E	Packet size (64 bytes, 128 bytes , 256 bytes, 512 bytes, or 1024 bytes)
F	Circuit type (PVC only, SVC answer only, all others)
G	Flow control negotiation allowed (No or Yes)
H	Manual options allowed (No or Yes)
I	Local loopback supported (No or Yes)
J	Reverse charging accepted (No or Yes)
K	Logical link control (QLLC or ELLC)
L	Telenet <u>(**)</u> -type network attachment (No or Yes)
M	Link initiation (network or 5494 ; or network only)
N	Network subscription (CCITT 1988 , CCITT 1984, or CCITT 1980)
O	Diagnostic code format (1984/1988 SNA , 1984/1988 ISO, or 1980 SNA)
P	Retry parameters:
P1	Number of retries (0 - 255, 10) _____
P2	Seconds between retries (1 - 60, 3) _____
Q	Logical channel (optional):
H1	AS/400 system 1 (001 - FFF) _____
H2	AS/400 system 2 (001 - FFF) _____

H3 AS/400 system 3 (001 - FFF)	_____
H4 AS/400 system 4 (001 - FFF)	_____
R Token-Ring Gateway support:	
R1 Are you using token-ring to attach workstations? (No or Yes)	
R2 What is your token-ring speed? (4 Mbps or 16 Mbps)	
S Ethernet Gateway support:	
S1 Are you using Ethernet to attach workstations? (No or Yes)	
S2 What is your Ethernet media type? (10BASE-T, 10BASE2, or 10BASE5)	
S3 What is your Ethernet frame format? (IEEE 802.3 or DIX Version 2.0)	
<p>Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.</p>	

Subtopics:

- [5.7.1 Instructions for Completing the AS/400 Communication Worksheet-X.25](#)
-

5.7.1 Instructions for Completing the AS/400 Communication Worksheet-X.25

Contact your network supplier for information needed to complete this worksheet.

A

Enter the logical link control (LLC) station address of your 5494. Valid entries are hexadecimal values X'01' to X'FE'. This must be the same as the address used by the adjacent link station (ALS) to identify this 5494. The ALS is the AS/400 system or the adjacent node with which you are directly communicating.

B

Circle the packet sequence numbering scheme your network subscription specifies. The 5494 supports modulo 8 and modulo 128.

C

Enter the packet window size. If you selected modulo 8 in field **B**, valid entries are 2 to 7. If you selected modulo 128, valid entries are 2 to 15.

Note: If you subscribe to the flow control negotiation facility, this value could be changed during individual circuit initiation procedures. In this case, enter the packet window size most often used.

D

Enter the link window size. Valid entries are 1 to 7.

E

Circle the appropriate packet size.

Note: If you subscribe to the flow control negotiation facility, this value could be changed during individual circuit initiation procedures. In this case, enter the packet size most often used.

F

Circle the correct circuit type as follows:

- **PVC only:** Choose this circuit type if you use only permanent virtual circuits (PVC).

If you choose this circuit type and you set field **H** for no manual options, link initiation occurs automatically following power-on, with no operator action needed. Following any link failure, link recovery also occurs without any operator action. The 5494 uses configured parameters for circuit establishment.

- **SVC answer only:** Choose this circuit type if you use only switched virtual circuits (SVC) and you do not intend to place any calls (answer only).

If you choose this circuit type and you set field **H** for no manual options, link initiation occurs automatically following power-on, with no operator action needed. Following any link failure, link recovery also occurs without any operator action. The 5494 uses configured parameters for circuit establishment and does not check the password in the incoming call packet.

- **All others:** Choose this circuit type if you use both PVC and SVC connections or if you intend to place SVC calls.

If you choose this circuit type, the 5494 operator needs to initiate circuit connections manually.

G

Does your subscription include the flow control negotiation facility?

Note: You must also circle **Yes** in field **H** to allow the operator to use the flow control negotiation facility for changing circuit parameters (such as packet size) on a per-call basis.

H

Circle **Yes** if you want to allow the operator to change all options when manually initiating a circuit connection. These options include flow control negotiation parameters, reverse charging, and others. (See [Topic 6, "Preparing the Network Link Establishment Worksheet," for more information.](#))

If you circle **No**, the operator is allowed to enter only the initiation type (Open PVC, Answer SVC, or Call SVC), logical channel ID, and the password during manual circuit initiation.

I

Does your DCE support local loopback initiated by interface pin 18?

J

Do you subscribe to the reverse charging facility and want to accept reverse-charged calls?

K

Which LLC facility will you be using? Valid entries are:

- Qualified logical link control (QLLC)
- Enhanced logical link control (ELLC).

Note: This entry must be the same as the LLC used by your ALS.

This entry can be changed during individual circuit initiation procedures. In this case, enter here the LLC most often used.

L

Will the 5494 be attached to a Telenet-type network? Telenet-type networks expect the 5494 to respond with UNNUMBERED ACKNOWLEDGMENT (UA) when polled with the DISCONNECT (DISC) command after sending SET ASYNCHRONOUS BALANCED MODE (SABM). If the 5494 will not be attached to a Telenet-type network, it responds with DISCONNECT MODE (DM) to a DISC received after sending SABM.

M

Will the 5494 be attached to a network that allows link initiation by either the network or the 5494, or does it require that link initiation be done only by the network?

N

Which level of the CCITT X.25 Recommendation does your network subscription support? Valid entries are 1988, 1984, or 1980.

O

Which format of diagnostic codes will be used by the 5494? Valid entries are:

- 1984/1988 Systems Network Architecture (SNA) extended format diagnostic codes
- 1984/1988 International Standards Organization (ISO) format diagnostic codes
- 1980 SNA format diagnostic codes.

Notes:

1. If field **N** is set for CCITT 1980, field **O** must be set for 1980 SNA format diagnostic codes.
2. The diagnostic code format of the 5494 must match that of the ALS.

P

Enter the following information used by the 5494 for retries:

P1

Enter the number of attempts the 5494 makes to solicit a response from the network to a transmitted frame (CCITT N2 parameter). Valid entries are 0 to 255. The default value is 10. Your network supplier may impose restrictions on this value to limit network congestion.

P2

Enter the number of seconds that the 5494 waits before timing out on a response to a transmitted frame (CCITT T1 parameter). This is also the time used by the 5494 to wait for a network link initiation request before attempting to send its

own link initiation request. Valid entries are 1 to 60. The default value is 3. Your network supplier may impose restrictions on this value.

Q

For each of your AS/400 systems (H1 to H4) defined on the Network Information Worksheet, enter the logical channel to be used for connection to that AS/400 system. This field is 3 hexadecimal characters. Valid entries are X'001' to X'FFF'.

Notes:

| 1. Only one logical channel is used at one time. If you are using
| concurrent host attachment, multiple AS/400 systems are accessed
| through the one logical channel.

2. This entry is optional. If no entry is made, the logical channel used by the 5494 is determined as follows:

- For PVC connections, the logical channel ID of the first received data packet is used for that connection.
- When initiating an SVC call, logical channel ID 001 is used.
- When answering an SVC call, the logical channel in the incoming call packet is used.

3. This value can be overridden during manual circuit initiation.

R

Token-Ring Gateway support:

R1

Are you attaching workstations to the 5494 using the Token-Ring Gateway configuration?

R2

If you are using a Token-Ring Gateway, what is your token-ring speed? Valid choices are 4 Mbps or 16 Mbps. The person who sets up your 5494 needs to know this speed in order to set up the 5494 correctly. If this is not the same person as the one who will configure the 5494, make sure this information is given to the correct person.

S

Ethernet Gateway support:

S1

Are you attaching workstations to the 5494 using the Ethernet Gateway configuration?

S2

If you are using Ethernet Gateway, what is your media type? Valid choices are 10BASE-T, 10BASE2, and 10BASE5. The person who sets up your 5494 needs to know the media type in order to set up the 5494 correctly. If this is not the same

person as the one who will configure the 5494, make sure this information is given to the correct person.

S3

If you are using Ethernet Gateway, what is your frame format? Valid choices are IEEE 802.3 and DIX Version 2.0.

The AS/400 Communication Worksheet--X.25 is complete. Return to [Table 14 in topic 5.0](#) to determine which additional worksheets you must complete.

5.8 AS/400 Communication Worksheet--Frame Relay

Complete this worksheet for frame relay communication.

Where applicable, the valid entries or range of entries are shown in parentheses. Default values (if any) are shown in bold. See "[Instructions for Completing the AS/400 Communication Worksheet-Frame Relay](#)" in topic 5.8.1.

AS/400 Communication Worksheet--Frame Relay		
5494 location _____		
Fill in the blank or circle/underline the appropriate choice.		
	NWS Field Name	
A Line and modem or DCE configuration A1 Line type (leased) A2 Line facility (full-duplex) A3 Connection type (point-to-point) A4 Data encoding (NRZI , NRZ) A5 Connection method (DTR) A6 Send leading pad (No) A7 Local loopback support (No)	3	
B Frame relay network information exchange B1 Polling Interval (T391) (5-30, 10) B2 Full Inquiry Interval (N391) (1-155, 6)	4 _____ 5 _____ 	
C Frame Relay LMI Mode	6 _____	
D 5494 Information D1 5494 SAP (04-FC) D2 Response Timer (T1), (1-20) D3 Inactivity Timer (Ti), (1-99, 30) D4 Receiver Acknowledgment Timer (T2) (1-255, 30) D5 Retry Count (N2) (1-99, 8)	F _____ G _____ H _____ I _____ J _____	
E Information for the primary AS/400 system is required.		
	AS/400 System 1 (H1)	AS/400 System 2 (H2)

E1 DLCI (1-1023)	H1:6	H2:6	
E2 AS/400 System SAP (04-FC)	H1:7	H2:7	
E3 Maximum Out (TW) (2-8)	H1:8	H2:8	
E4 Maximum In (N3) (1-4)	H1:9	H2:9	
<hr/>			
		AS/400 System 3 (H3)	AS/400 System 4 (H4)
E1 DLCI (1-1023)	H3:6	H4:6	
E2 AS/400 System SAP (04-FC)	H3:7	H4:7	
E3 Maximum Out (TW) (2-8)	H3:8	H4:8	
E4 Maximum In (N3) (1-4)	H3:9	H4:9	
<hr/>			
F Token-Ring Gateway Support F1 Are you using Token-Ring Gateway to attach workstations? (Yes or No) F2 Are you using the Frame Relay Token-Ring Bridge? (Yes or No) F3 What is your Token-Ring speed? (4 Mbps or 16 Mbps)			
G Ethernet Gateway Support G1 Are you using Ethernet Gateway to attach workstations? (Yes or No) G2 What is your Ethernet media type? (10BASE-T, 10BASE2, or 10BASE5) G3 What is your Ethernet frame format? (IEEE 802.3 or DIX Version 2.0)			
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.			

Subtopics:

- [5.8.1 Instructions for Completing the AS/400 Communication Worksheet-Frame Relay](#)

5.8.1 Instructions for Completing the AS/400 Communication Worksheet-Frame Relay

A

Circle the appropriate choice in fields A1 through A7. Most of the following entries have one choice for frame relay communications.

A1

Leased is the only valid line type for frame relay.

A2

Full-duplex is the only valid line facility for frame relay.

A3

Point-to-Point is the only valid connection type for frame relay.

A4

Does your modem documentation recommend nonreturn-to-zero inverted (NRZI) or nonreturn-to-zero (NRZ) data encoding? This **must** match the configuration information for NRZ or NRZI
| at the ALS. Many telephone companies with high-speed lines
| require NRZ data encoding.

A5

DTR is the only valid connection method for frame relay.

A6

No leading pad is required for frame relay.

A7

No local loopback is supported for frame relay.

B

The polling interval and the full inquiry interval parameters are used to control the exchange of information over the Local Management Interface (LMI). This keep-alive exchange of status information is used to maintain contact between the 5494 and the frame handler (frame relay network node).

B1

Enter the polling interval in seconds. This value specifies the rate at which the 5494 sends a status inquiry message to the frame handler. Valid entries are 5 to 30. The default value is 10 seconds.

B2

Enter the full inquiry interval in cycles. This value specifies the number of status inquiry messages that the 5494 sends before it sends a full status request to the frame
| handler. Valid entries are 1 to 155. The default value is 6 cycles.

C

Enter the Frame Relay LMI Mode. This value is used to specify the type of LMI exchange done by the 5494. Valid choices are **No LMI, ANSI T1.617 Annex D, or CCITT Q.933**. The default is ANSI T1.617 Annex D. This value must coordinate with the LMI mode configuration at the frame handler.

D

Enter the Frame Relay values for the 5494:

D1

Enter the service access point (SAP) value for the 5494. Valid entries are hexadecimal values X'04' to X'FC' that are multiples of X'04'. The default value is X'04'.

D2

Enter the response timer (T1) value for the 5494. This value is the maximum number of seconds allowed to detect a failure to receive a required acknowledgment or response from the AS/400 system or the adjacent link station. This value must be greater than the total number of delays that a frame might receive in the network. Valid entries are 1 to 20 seconds. The default value is 1.

D3

Enter the inactivity timer (Ti) value for the 5494. This value is the maximum number of seconds allowed to detect an inoperative condition in the AS/400 system or the token-ring network. This value must be at least 10 times greater than the response timer (T1) value. Valid entries are 1 to 99 seconds. The default value is 30.

D4

Enter the receiver acknowledgment timer (T2) for the 5494. This value is the maximum number of milliseconds allowed to make sure that acknowledgments are sent to the AS/400 system or the adjacent link station. Valid entries are 1 to 255 milliseconds. The default value is 30.

D5

Enter the retry count (N2) for the 5494. This value is the maximum number of attempts allowed to perform the checkpoint procedure including retransmission following the expiration of T1. The combination of the T1 value and the retry count (N2) value must be large enough to allow for error detection and recovery on the network. Valid entries are 1 to 99. Typical values are less than 10. The default value is 8.

E

Enter the frame relay values for each AS/400 system (H1 to H4) defined in your Network Information Worksheet.

E1

Enter the data link connection identifier (DLCI) for the network interface. This number is supplied by your network provider. DLCIs have significance only between the 5494 and the frame handler. Valid values are 1 to 1023. The AS/400 system normally reserves values from 1019 to 1023 and only allows a value from 1 to 1018. This value must match the DLCI configuration at the frame handler.

E2

Enter the SAP value used for communication with your AS/400 system. Valid entries are hexadecimal values X'04' to X'FC' that are multiples of X'04'. The default value is X'04'.

E3

Enter the maximum out (TW) count. This count is the maximum number of sequentially numbered frames the 5494 can send before waiting for an acknowledgment. This value must be at least twice the value of the maximum in (N3) count. Valid entries are 2 to 8. The default value is 2.

E4

Enter the maximum in (N3) count. This count is the maximum number of I-format frames received by the 5494 from the AS/400 system before sending an acknowledgment. Valid entries are 1 to 4. The default value is 1.

F

Token-Ring Gateway support:

F1

Are you attaching workstations to the 5494 using the Token-Ring Gateway configuration?

| F2

Are you using the Frame Relay Token-Ring Bridge to bridge
| frames to and from the token-ring attached workstations and
| printers?

F3

If you are using a Token-Ring Gateway, what is your token-ring speed? Valid choices are 4 Mbps or 16 Mbps. The person who sets up your 5494 needs to know this speed in order to set up the 5494 correctly. If this is not the same person as the one who will configure the 5494, make sure this information is given to the correct person.

G

Ethernet Gateway support:

G1

Are you attaching workstations to the 5494 using the Ethernet Gateway configuration?

G2

If you are using Ethernet Gateway, what is your media type? Valid choices are 10BASE-T, 10BASE2, and 10BASE5. The person who sets up your 5494 needs to know the media type in order to set up the 5494 correctly. If this is not the same person as the one who will configure the 5494, make sure this information is given to the correct person.

G3

If you are using Ethernet Gateway, what is your frame format? Valid choices are IEEE 802.3 and DIX Version 2.0.

The AS/400 Communication Worksheet-Frame Relay is complete. Return to [Table 14 in topic 5.0](#) to determine which additional worksheets you must complete.

5.9 AS/400 Communication Worksheets--LAN

Complete one of the following worksheets for an AS/400 system connection using a token-ring or Ethernet network.

Note: If you are using a token-ring or Ethernet network to connect workstations to the 5494 (Token-Ring Gateway or Ethernet Gateway configuration), do not complete this worksheet. Instead, go to "[LAN Gateway Worksheets](#)" in topic 5.10.

Subtopics:

- [5.9.1 AS/400 Communication Worksheet--Token-Ring](#)
 - [5.9.2 AS/400 Communication Worksheet--Ethernet](#)
 - [5.9.3 Instructions for Completing the AS/400 Communication Worksheet--Token-Ring or Ethernet](#)
-

5.9.1 AS/400 Communication Worksheet--Token-Ring

Where applicable, the valid entries or range of entries are shown in parentheses. Default values (if any) are shown in bold. See "[Instructions for Completing the AS/400 Communication Worksheet--Token-Ring or Ethernet](#)" in topic 5.9.3.

AS/400 Communication Worksheet--Token Ring	
5494 location _____	
Fill in the blank or circle/underline the appropriate choice:	
What is your Token-Ring speed? (4 Mbps or 16 Mbps)	
	NWS Field Name
A 5494 information:	
A1 5494 SAP (04 - FC)	F _____
A2 Response timer (T1) (1 - 20)	G _____
A3 Inactivity timer (Ti) (1 - 99, 30)	H _____
A4 Receiver acknowledgment timer (T2) (1 - 255, 30)	I _____
A5 Retry count (N2) (1 - 99, 8)	J _____
Information for the primary AS/400 system is required.	
H1 AS/400 system 1:	
1 AS/400 system SAP (04 - FC)	H1:7 _____
2 Maximum out (TW) (2 - 8)	H1:8 _____
3 Maximum in (N3) (1 - 4)	H1:9 _____
H2 AS/400 system 2:	
1 AS/400 system SAP (04 - FC)	H2:7 _____
2 Maximum out (TW) (2 - 8)	H2:8 _____
3 Maximum in (N3) (1 - 4)	H2:9 _____
H3 AS/400 system 3:	
1 AS/400 system SAP (04 - FC)	H3:7 _____
2 Maximum out (TW) (2 - 8)	H3:8 _____
3 Maximum in (N3) (1 - 4)	H3:9 _____
H4 AS/400 system 4:	
1 AS/400 system SAP (04 - FC)	H4:7 _____
2 Maximum out (TW) (2 - 8)	H4:8 _____
3 Maximum in (N3) (1 - 4)	H4:9 _____
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.	

5.9.2 AS/400 Communication Worksheet--Ethernet

Where applicable, the valid entries or range of entries are shown in parentheses. Default values (if any) are shown in bold. See "[Instructions for Completing the AS/400 Communication Worksheet--Token-Ring or Ethernet](#)" in topic 5.9.3.

AS/400 Communication Worksheet--Ethernet	
5494 location _____	
Fill in the blank or circle/underline the appropriate choice:	
What is your Ethernet media type?	

(10BASE-T, 10BASE2, 10BASE5) What is your Ethernet frame format? (IEEE 802.3 or DIX Version 2.0)	
NWS Field Name	
A 5494 information:	F _____
A1 5494 SAP (04 - FC)	G _____
A2 Response timer (T1) (1 - 20)	H _____
A3 Inactivity timer (Ti) (1 - 99, 30)	I _____
A4 Receiver acknowledgment timer (T2) (1 - 255, 30)	J _____
A5 Retry count (N2) (1 - 99, 8)	
Information for the primary AS/400 system is required.	
H1 AS/400 system 1:	
1 AS/400 system SAP (04 - FC)	H1:7 _____
2 Maximum out (TW) (2 - 8)	H1:8 _____
3 Maximum in (N3) (1 - 4)	H1:9 _____
H2 AS/400 system 2:	
1 AS/400 system SAP (04 - FC)	H2:7 _____
2 Maximum out (TW) (2 - 8)	H2:8 _____
3 Maximum in (N3) (1 - 4)	H2:9 _____
H3 AS/400 system 3:	
1 AS/400 system SAP (04 - FC)	H3:7 _____
2 Maximum out (TW) (2 - 8)	H3:8 _____
3 Maximum in (N3) (1 - 4)	H3:9 _____
H4 AS/400 system 4:	
1 AS/400 system SAP (04 - FC)	H4:7 _____
2 Maximum out (TW) (2 - 8)	H4:8 _____
3 Maximum in (N3) (1 - 4)	H4:9 _____
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.	

5.9.3 Instructions for Completing the AS/400 Communication Worksheet--Token-Ring or Ethernet

If you are completing the AS/400 Communication Worksheet--Token-Ring, circle your token-ring speed at the top of the worksheet. If you are completing the AS/400 Communication Worksheet--Ethernet, circle the Ethernet media type and the Ethernet frame format to be used when communicating with the AS/400 system. This information will be used by the person who sets up the 5494 at the remote location.

A

Enter the Token-Ring or Ethernet values for the 5494.

A1

Enter the service access point (SAP) value for the 5494. Valid entries are hexadecimal values X'04' to X'FC' that are multiples of X'04'. The default value is X'04'.

A2

Enter the response timer (T1) value for the 5494. This value is the maximum number of seconds allowed to detect a failure to receive a required acknowledgment or response from the AS/400 system or the adjacent link station. This value must be greater than the total number of delays that a frame might receive in the network. Valid entries are 1 to 20 seconds. The default value is 1.

A3

Enter the inactivity timer (Ti) value for the 5494. This value is the maximum number of seconds allowed to detect an inoperative condition in the AS/400 system or the token-ring network. This value must be at least 10 times greater than the response timer (T1) value. Valid entries are 1 to 99 seconds. The default value is 30.

A4

Enter the receiver acknowledgment timer (T2) for the 5494. This value is the maximum number of milliseconds allowed to make sure that acknowledgments are sent to the AS/400 system or the adjacent link station. Valid entries are 1 to 255 milliseconds. The default value is 30.

A5

Enter the retry count (N2) for the 5494. This value is the maximum number of attempts allowed to perform the checkpoint procedure including retransmission following the expiration of T1. The combination of the T1 value and the retry count (N2) value must be large enough to allow for error detection and recovery on the network. Valid entries are 1 to 99. Typical values are less than 10. The default value is 8.

H1, H2,

H3, H4 For each AS/400 system (H1 to H4) defined on your Network Information Worksheet, enter the following information:

1

Enter the SAP value used for communication with your AS/400 system. Valid entries are hexadecimal values X'04' to X'FC' that are multiples of X'04'. The default value is X'04'.

2

Enter the maximum out (TW) count. This count is the maximum number of sequentially numbered frames the 5494 can send before waiting for an acknowledgment. This value must be at least twice the value of the maximum in (N3) count. Valid entries are 2 to 8. The default value is 2.

3

Enter the maximum in (N3) count. This count is the maximum number of I-format frames received by the 5494 from the AS/400 system before sending an acknowledgment. Valid entries are 1 to 4. The default value is 1.

The AS/400 Communication Worksheet--Token-Ring or The AS/400 Communication Worksheet--Ethernet is complete. Return to [Table 14 in topic 5.0](#) to determine which additional worksheets you must complete.

5.10 LAN Gateway Worksheets

Complete one of the following worksheets if you are using a LAN Gateway to attach workstations to the 5494.

Note: If you are using a token-ring network or Ethernet network to connect the 5494 to the AS/400 system (LAN AS/400 Attachment configuration) do not complete either of these worksheets. Instead, go to ["AS/400 Communication Worksheets--LAN" in topic 5.9](#).

Subtopics:

- [5.10.1 Token-Ring Gateway Worksheet](#)
 - [5.10.2 Ethernet Gateway Worksheet](#)
 - [5.10.3 Instructions for Completing the Token-Ring Gateway or Ethernet Gateway Worksheet](#)
-

5.10.1 Token-Ring Gateway Worksheet

Where applicable, the valid entries or range of entries are shown in parentheses. Default settings (if any) are shown in bold. See "[Instructions for Completing the Token-Ring Gateway or Ethernet Gateway Worksheet](#)" in topic [5.10.3](#).

Token-Ring Gateway Worksheet	
5494 location _____	
Fill in the blank or circle/underline the appropriate choice.	NWS Field Name
A 5494 Token-Ring address (or use permanent address)	K _____
B 5494 SAP (04 – FC)	L _____
C Response timer (T1) (1 – 20)	M _____
D Inactivity timer (Ti) (1 – 99, 30)	N _____
E Receiver acknowledgment timer (T2) (1 – 255, 30)	O _____
F Retry count (N2) (1 – 99, 8)	Q _____
G Maximum out (TW) (2 – 8)	R _____
H Maximum in (N3) (1 – 4)	S _____
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.	

5.10.2 Ethernet Gateway Worksheet

Where applicable, the valid entries or range of entries are shown in parentheses. Default settings (if any) are shown in bold. See "[Instructions for Completing the Token-Ring Gateway or Ethernet Gateway Worksheet](#)" in topic [5.10.3](#).

Ethernet Gateway Worksheet	
5494 location _____	
Fill in the blank or circle/underline the appropriate choice.	NWS Field Name
A 5494 Ethernet address (or use permanent address)	K _____
B 5494 SAP (04 – FC)	L _____
C Response timer (T1) (1 – 20)	M _____
D Inactivity timer (Ti) (1 –	N _____

99, 30)	O _____
E Receiver acknowledgment timer (T2) (1 - 255, 30)	Q _____
F Retry count (N2) (1 - 99, 8)	R _____
G Maximum out (TW) (2 - 8)	S _____
H Maximum in (N3) (1 - 4)	
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.	

5.10.3 Instructions for Completing the Token-Ring Gateway or Ethernet Gateway Worksheet

| A

For the Token-Ring or Ethernet address of your 5494, do either of
| the following:

- | Use the permanent (Universal) address on the LAN adapter.

|

Notes:

- | When you are configuring from a device attached to an active
| 5494, the permanent address is displayed when you select it.
| You can always display the permanent address from the Op
| Panel of the 5494 by pressing REQ, typing 216, and pressing
| Enter.
- | The Ethernet permanent address is displayed in token-ring
| format.
- | Enter the Token-Ring or Ethernet Address of the 5494. Valid
| characters are 0-9 and A-F.
 - | For token-ring, the first four characters must be X'4000'.
◦ | For Ethernet, the address may be entered in one of the two
| following formats:

Ethernet canonical format

The first four characters must contain X'0200'.

Token-Ring format

The first four characters must contain X'4000'.

The 5494 uses a locally administered address as the default value rather than the universally administered address encoded
| on the 5494 LAN Adapter. This default value is 40005494E000. If you change to Ethernet format, the default address is
02005494E000.

The 5494 supports both address formats to ease the task of configuring the 5494. For Ethernet AS/400 attachment, the remote Ethernet adapter address in the AS/400 APPC controller is entered in Ethernet canonical format. The 5494's address may be entered in canonical format to match the AS/400 system. Alternatively, when configuring a PWS to communicate through the 5494 in an Ethernet Gateway configuration, some PWSs require the address of the 5494 be entered in token-ring format. The address may be entered in the 5494 in token-ring format to match the PWS.

B

Enter the service access point (SAP) value for the 5494. Valid entries are hexadecimal values X'04' to X'FC' that are multiples of X'04'. The default value is X'04'.

C

Enter the response timer (T1) value for the 5494. This value is the maximum number of seconds allowed to detect a failure to receive a required acknowledgment or response from the workstation. This value must be greater than the total number of delays that a frame might receive in the network. Valid entries are 1 to 20 seconds. The default value is 1.

D

Enter the inactivity timer (Ti) value for the 5494. This value is the maximum number of seconds allowed to detect an inoperative condition in the workstation or the token-ring network. This value must be at least 10 times greater than the T1 value. Valid entries are 1 to 99 seconds. The default value is 30.

E

Enter the receiver acknowledgment timer (T2) for the 5494. This value is the maximum number of milliseconds allowed to make sure that acknowledgments are sent to the workstation. Valid entries are 1 to 255 milliseconds. The default value is 30.

F

Enter the retry count (N2) for the 5494. This value is the maximum number of attempts allowed to perform the checkpoint procedure including retransmission following the expiration of T1. The combination of the T1 value and N2 value must be large enough to allow for error detection and recovery on the network. Valid entries are 1 to 99. Typical values are less than 10. The default value is 8.

G

Enter the maximum out (TW) count. This count is the maximum number of sequentially numbered frames the 5494 can send before waiting for an acknowledgment. This value must be at least twice the value of the maximum in (N3) count. Valid entries are 2 to 8. The default value is 2.

H

Enter the N3 count. This count is the maximum number of I-format frames received by the 5494 from the workstation before sending an acknowledgment. Valid entries are 1 to 4. The default value is 1.

The Token-Ring Gateway Worksheet or Ethernet Gateway Worksheet is complete. Return to [Table 14 in topic 5.0](#) to determine which additional worksheets you must complete.

5.11 Keyboard Translation Worksheet

Complete this worksheet if you are attaching 5250 workstations to the 5494.

See "[Instructions for Completing the Keyboard Translation Worksheet](#)" in topic 5.11.1.

Keyboard Translation Worksheet						
5494 location	<hr/>					
Fill in the blanks:						
A Default keyboard translation	<hr/>					
B Select alternate keyboard translations by port and station:						
5250 Workstation Address						
Port	0	1	2	3	4	5
0						
1						
2						
3						
4						
5						
6						
7						

Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.

Subtopics:

- [5.11.1 Instructions for Completing the Keyboard Translation Worksheet](#)

5.11.1 Instructions for Completing the Keyboard Translation Worksheet

The Keyboard Translation Worksheet allows you to select the keyboard translations for all possible 5250 addresses on the 5494. Ports 4-7 are available if the Twinaxial Expansion Kit is installed.

A

Select your default keyboard translation. This language is used for all 5250 addresses not specifically set to a different language in field **B**. See [Table 17](#) for valid translation codes. If you plan to use more than one keyboard language translation, you must choose a multinational language for all choices. If you only plan to use one keyboard language translation, any of the language codes listed in [Table 17](#) may be used for the default language. Enter the two-digit hexadecimal code in the worksheet.

B

Select your alternate keyboard translations by port and station address. A total of four keyboard language translations may be used on the 5494. If you are using alternate keyboard translations, all choices must be multinational languages. Enter the selected two-digit hexadecimal codes in the worksheet for each port and station address. A blank port and station address causes the default keyboard translation to be used.

Notes:

1. When a printer is attached to the 5494, any keyboard translation code configured for that port and station address is ignored by the 5494.
2. If you intend to use a Keyboard translation table (KTT) downloaded from the AS/400 system, enter the value for your existing keyboard. If you do not know the value for the language, you can enter any value for the keyboard code.

| The Keyboard Translation Worksheet is complete. Return to [Table 14 in topic 5.0](#) to determine which additional worksheets (if any) you must complete.

Table 17. Keyboard Codes

Country Character Set	Keyboard Code	Country Character Set	Keyboard Code
Albania	3E	Japanese/Katakana multinational	01
Arabic	30	Japanese multinational	03
Austria/Germany	20	Korea	38
Austria/Germany multinational	21	Latin America	0E
Belgium multinational	07	Latin America multinational	0F
Brazil	3C	Latin 2	34
Bulgaria (Cyrillic)	3F	Macedonia (Cyrillic)	42
Canada	00	Netherlands	2D
Canada multinational	22	Netherlands multinational	2E
Canadian French	08	Norway	16
Canadian French multinational	09	Norway multinational	17
Cyrillic	31	Poland	43
Czech	40	Portugal	18
Denmark	0A	Portugal multinational	19
Denmark multinational	0B	Romania	44
Farsi (Iran)	3D	Russia (Cyrillic)	45
Finland	0C	Serbia (Cyrillic)	48
Finland multinational	0D	Simplified Chinese (People's Republic of China)	3A
France (AZERTY)	04	Slovakia	46
France (AZERTY) multinational	05	Spain	1C
France (QWERTY)	1A	Spain multinational	1D
France (QWERTY) multinational	1B	Sweden	1E
Greek	32	Sweden multinational	1F
Greek 2	3B	Switzerland	28
Hebrew	33	Swiss French multinational	2A
Hungary	41	Swiss German multinational	
Icelandic	2B	Traditional Chinese (Taiwan)	39
Icelandic multinational	2C	Thai	35
International	14	Turkey	36
International multinational	15	Turkey 2	47
Italy	10	United Kingdom	12
Italy multinational	11	United Kingdom multinational	13
Japanese/English multinational	02	United States	00
Japanese/Kanji multinational	37	United States multinational	22
		Yugoslav multinational	2F

Notes:

1. Make sure that all keyboard codes used in your configuration are supported by your AS/400 system.
2. If the workstations in your configuration have different keyboard codes, you must select only multinational keyboard codes.
3. You can select a maximum of four multinational keyboard codes for any configuration.

| 5.12 Frame Relay Token-Ring Bridge Worksheet

| Where applicable, the valid entries or range of entries are shown in
| parentheses. Default settings (if any) are shown in bold. See
| "[Instructions for Completing the Frame Relay Token-Ring Bridge Worksheet](#)"
| in topic [5.12.1](#) for instructions on completing this worksheet.

Frame Relay Token-Ring Bridge Worksheet		
5494 location _____		
Fill in the blank or circle/underline the appropriate choice.		NWS Field Name
A	LAN ring number (X'001' - X'FFF')	30 _____
B	LAN ring speed (9600-16000000, 4000000)	31 _____
C	Frame Relay Virtual Ring Number (X'001' - X'FFF')	32 _____
D	Frame Relay line speed (9600-128000)	33 _____
E	Frame Relay Virtual LAN MAC Address (X'400000000000' - X'4FFFFFFFFF')	34 _____
F	Frame Relay DLCIs (1-1023) (One is required)	35a _____ 35b _____ 35c _____ 35d _____
G	5494 Bridge Number (0-15, 1)	36 _____
H	5494 Bridge Priority (X'0001' - X'FFFF')	37 _____
I	Maximum Age BPDU in seconds (6-40, 20)	38 _____
J	Time period between BPDUs in seconds (1-10, 2)	39 _____
K	Enable Automatic Spanning Tree (Yes, No)	40 _____
L	Spanning Tree Explorer Frames (Forward, Drop) LAN Port: Frame Relay Port:	41a _____ 41b _____
M	Hop Count (01-07) LAN Port: Frame Relay Port:	42a _____ 42b _____
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.		

Subtopics:

- [5.12.1 Instructions for Completing the Frame Relay Token-Ring Bridge Worksheet](#)

| 5.12.1 Instructions for Completing the Frame Relay Token-Ring Bridge Worksheet

| A

Enter the ring number of the LAN segment to be bridged. This number
| must uniquely define the 5494-attached token-ring LAN segment within
| the network. Valid entries are hexadecimal values X'001' to X'FFF'.
| This number is required.

| B

Enter the LAN ring speed in bits per second. This number represents
| the speed of the attached token-ring. This value does not have to
| match the actual speed. It is used to calculate the relative path
| cost value for the LAN. The relative cost value is used by the
| Spanning Tree algorithm to establish the most efficient path to the
| root node of the bridged network. Higher speeds produce lower
| relative path costs. Valid entries are 9600 to 16000000. The
| default is 4000000.

| C

Enter the ring number of the virtual LAN segment that represents the
| frame relay network. This number must uniquely define the frame
| relay virtual LAN segment within the network. The same ring number
| must be used by all the bridge partners on the frame relay network.
| Valid entries are hexadecimal values X'001' to X'FFF'. This number
| is required.

| D

Enter the frame relay line speed in bits per second. This number
| represents the speed of the frame relay segment. Like the LAN ring
| speed (B), this value does not have to match the actual speed; it is
| used to calculate the the relative path cost value for the virtual
| LAN (frame relay segment). Higher speeds produce lower relative
| path costs. Valid entries are 9600 to 128000. The default is 9600.

| E

Enter the frame relay virtual LAN MAC address. This is the MAC
| address of the 5494 on the virtual LAN segment that represents the
| frame relay network. It must be unique in the bridged network. It
| is not the same as the 5494 token-ring address. Valid entries are
| hexadecimal values X'400000000000' to X'4FFFFFFFFFFF'. This number
| is required.

| F

Enter one to four frame relay DLCI numbers. Each number represents
| a DLCI of the frame relay connection to a different bridge partner.
| It is possible to configure four different DLCIs for bridging. They
| must all be unique and different from the DLCIs used for SNA direct
| traffic. (See field E1 on the ["AS/400 Communication
Worksheet--Frame Relay" in topic 5.8.](#)) Valid entries are 1 to 1023.
| One DLCI is required. If you configure for No LMI and FR-TR Bridge,

| then configure only the DLCIs that are active in the frame relay
| network. (See field **C** on the "[Instructions for Completing the](#)
[AS/400 Communication Worksheet-Frame Relay](#)" in topic **5.8.1**.)

| **G**

Enter the bridge number for this bridge. This value can remain at
the default, which is **1**, unless there is another bridge that
connects the same token-ring with the same frame relay virtual LAN,
and it is also using the value 1. Valid entries are 0 to 15.

| **H**

Enter the bridge priority value of this bridge. The priority is
used in the spanning tree algorithm to influence the root node
selection. Bridges with lower priority values will become root
bridges in preference to bridges with higher priority values. Valid
entries are hexadecimal values X'0001' to X'FFFF'. The default is
X'FFFF'.

| **I**

Enter the maximum age BPDU. This specifies the number of seconds a
bridge path data unit (BPDU) can exist before it is discarded when
this bridge is acting as the root node of a spanning tree. This
value must be greater than two times the time period between BPDUs
(field **J**), or the 5494 adjusts this value to two times the time
period between BPDUs plus one. Valid entries are 6 to 40. The
default is 20.

| **J**

Enter the time period between BPDUs. This specifies the number of
seconds between BPDUs when a bridge is the root node or is
contending to be the root node. Valid entries are 1 to 10. The
default is 2.

| **K**

Indicate whether or not the automatic spanning tree is enabled. If
you indicate "yes," the bridge participates in the IEEE 802.1D
spanning tree protocol. If you indicate "no," the spanning tree
explorer frames parameter that follows will determine the handling
of spanning tree explorer frames for each port. The default is No.

| **L**

If you set the Enable Automatic Tree Operation in Step **K** to "No,"
specify how the spanning tree explorer frames (single-route
broadcast frames) received on this bridge port will be handled.
Choose "Forward" to enable forwarding of spanning tree explorer
frames. Choose "Drop" to disable the forwarding of such frames.
There are two subfields: one for the LAN port; one for the frame
relay port. The default is Forward.

| **M**

Enter the maximum number of bridges that an explorer (broadcast)
frame can cross in this bridged LAN before being discarded. If the

| number of bridges that an explorer frame has traversed before
| getting to this bridge is greater than or equal to this value, the
| frame is not forwarded by this bridge. Generally, choose a value
| that is the same for all bridge ports on the LAN. There are two
| subfields: one for the LAN port; one for the frame relay port.
| Valid entries are 1 to 7. The default is 7.

| The Frame Relay Token-Ring Bridge Worksheet is complete.

6.0 Topic 6. Preparing the Network Link Establishment Worksheet

This topic provides information to help you decide if you need to complete a Network Link Establishment Worksheet. This topic also provides instructions for completing the appropriate Network Link Establishment Worksheet.

Many configurations do not require operator action to establish an initial network link. When the 5494 is turned on, it automatically attempts to establish a link to the primary AS/400 system. Other configurations require operator action to establish the primary network link.

When establishing a link level connection to the ALS, the 5494 uses the link level information specified for the primary host. The primary host is selected during configuration of the 5494. The Network Link Establishment Worksheets are used by the operator to initiate a connection to the configured primary host or to change the currently selected primary host to an alternate AS/400 system. The 5494 then uses the link parameters and 5494 network ID from this host configuration. The 5494 attempts to reestablish links (if necessary) to the currently selected primary host.

The Network Link Establishment Worksheets are used by the operator to establish a primary network link or to change to an alternate AS/400 system. The 5494 attempts to reestablish links that have gone down to the currently selected AS/400 system.

[Table 18](#) lists information for each possible communication mode and line type. It lists the correct worksheet and tells you when you need to provide it. If you require a worksheet, go to the topic listed in the table and follow the steps to complete the worksheet.

Table 18. Determining Required Worksheet			
Interface to the AS/400 System	Line Type	Complete This Worksheet	When Required
EIA 232D (CCITT V.24/V.28) or CCITT V.35	SDLC Leased	SDLC Network Link Establishment Worksheet in topic 6.1.1	<ul style="list-style-type: none"> ◦ Not required to establish a link with the primary AS/400 system. ◦ Required if you want to change the currently selected primary AS/400 system.
EIA 232D (CCITT V.24/V.28) or CCITT V.35	SDLC Switched	SDLC Network Link Establishment Worksheet in topic 6.1.1	<ul style="list-style-type: none"> ◦ Required for establishing a link with the primary AS/400 system by placing a call or manually answering a call. Not required when automatically answering a call. ◦ Required if you

			want to change the currently selected primary AS/400 system.
CCITT X.21 bis (V.24/V.28 or V.35) or CCITT X.21	X.21 data network leased	SDLC Network Link Establishment Worksheet in topic 6.1.1 Note: SDLC provides the communication for X.21 leased lines.	<ul style="list-style-type: none"> ◦ Not required to establish a link with the primary AS/400 system. ◦ Required if you want to change the currently selected primary AS/400 system.
CCITT X.21	X.21 data network switched	X.21 Switched Network Link Establishment Worksheet in topic 6.2.1	<ul style="list-style-type: none"> ◦ Required if placing a call. Also required for online facility registration. Not required to answer a call from the primary AS/400 system. ◦ Required if you want to change the currently selected primary AS/400 system.
CCITT X.21 bis (V.24/V.28 or V.35) or CCITT X.21	X.25 packet-switched data network	X.25 Network Link Establishment Worksheet in topic 6.3.1	<ul style="list-style-type: none"> ◦ Not required to establish a link with the primary AS/400 system, if your circuit type is PVC only or SVC answer only and no manual options are allowed. Required for all other circuit types. ◦ Required if you want to change the currently selected primary AS/400 system.
Token-Ring, Ethernet, or Frame Relay	Any	Token-Ring, Ethernet, or Frame Relay Network Link Establishment Worksheet in topic 6.4.1	<ul style="list-style-type: none"> ◦ Not required to establish a link with the primary AS/400 system. ◦ Required if you want to change the currently selected primary AS/400 system.

Subtopics:

- [6.1 SDLC Network Link Establishment](#)
- [6.2 X.21 Switched Network Link Establishment](#)
- [6.3 X.25 Network Link Establishment](#)
- [6.4 Token-Ring, Ethernet, or Frame Relay Network Link Establishment](#)

6.1 SDLC Network Link Establishment

Use this worksheet in conjunction with the *5494 User's Guide* to initiate the connection with your AS/400 system.

Subtopics:

- [6.1.1 SDLC Network Link Establishment Worksheet](#)
- [6.1.2 Instructions for Completing the SDLC Network Link Establishment Worksheet](#)

6.1.1 SDLC Network Link Establishment Worksheet

SDLC Network Link Establishment Worksheet	
<p>Note to the operator: The instructions in the <i>5494 Remote Control Unit User's Guide</i> tell you how to use this information to establish a link to your AS/400 system.</p>	
<p>Section 1. Connection to primary system:</p>	
<p>Check one:</p>	
<p><input type="checkbox"/> NO OPERATOR ACTION NEEDED.</p>	
<p><input type="checkbox"/> Use parameters below for H1, H2, H3, or H4 AS/400 system. (Circle one)</p>	
<p>Section 2. Connect to one of the AS/400 systems using the parameters circled or listed below:</p>	
<p>H1 AS/400 system 1 familiar name _____</p>	
<p>A Select one: (leased, switched, or switched/V.25 bis)</p>	
<p>B For switched, select connection type (manual dial, manual answer, auto-answer)</p>	
<p>C For switched/V.25 bis, select connection type (initiate call, answer call)</p>	
<p>D H1 AS/400 system 1</p>	
<p>H2 AS/400 system 2 familiar name _____</p>	
<p>A Select one: (leased, switched, or switched/V.25 bis)</p>	
<p>B For switched, select connection type (manual dial, manual answer, auto-answer)</p>	
<p>C For switched/V.25 bis, select connection type (initiate call, answer call)</p>	
<p>D H2 AS/400 system 2</p>	
<p>H3 AS/400 system 3 familiar name _____</p>	
<p>A Select one: (leased, switched, or switched/V.25 bis)</p>	
<p>B For switched, select connection type (manual dial, manual answer, auto-answer)</p>	
<p>C For switched/V.25 bis, select connection type (initiate call, answer call)</p>	
<p>D H3 AS/400 system 3</p>	
<p>H4 AS/400 system 4 familiar name _____</p>	
<p>A Select one: (leased, switched, or switched/V.25 bis)</p>	
<p>B For switched, select connection type (manual dial, manual answer, auto-answer)</p>	
<p>C For switched/V.25 bis, select connection type (initiate call, answer call)</p>	
<p>D H4 AS/400 system 4</p>	
<p>Note: If your current connection to an AS/400 system is active, the 5494 must be varied offline at that AS/400 system before a new connection is attempted.</p>	

6.1.2 Instructions for Completing the SDLC Network Link Establishment Worksheet

Circle the correct choice or fill in the blanks on the worksheet.

Subtopics:

- [6.1.2.1 Section 1](#)
 - [6.1.2.2 Section 2](#)
-

6.1.2.1 Section 1

Section 1 requests information for your primary AS/400 system. If your line is switched and you are initiating a call from the 5494 or manually answering a call at the 5494, operator action is required. For all other connections to the primary AS/400 system, no operator action is needed.

6.1.2.2 Section 2

For each of your AS/400 systems (H1 to H4), provide the following information.

Fill in a *familiar name* for each of your AS/400 systems. This is the name that the 5494 user relates to a particular AS/400 system.

For example, the AS/400 system LU Name for H1:1 may be *SYSNAME* but the name that the 5494 users may refer to is *Rochester*. Therefore, you would enter *Rochester* as the familiar name. See page [D.0](#) for an example.

A

Is your line leased, switched, or switched and you are using a V.25 bis auto-dial modem?

B

If your line is switched, is the connection established by manual dial at the 5494 site, by manual answer at the 5494 site, or by auto-answer at the 5494 site?

C

If your line is switched and you are using a V.25 bis auto-dial modem, is the connection established by initiating the call from the 5494 or by answering a call from the AS/400 system?

D

This is the configured AS/400 system with which you are attempting to establish a link.

The SDLC Link Establishment Worksheet is complete.

6.2 X.21 Switched Network Link Establishment

Use this worksheet in conjunction with the *5494 User's Guide* to initiate the connection with your AS/400 system.

Subtopics:

- [6.2.1 X.21 Switched Network Link Establishment Worksheet](#)
- [6.2.2 Instructions for Completing the X.21 Switched Network Link Establishment Worksheet](#)

6.2.1 X.21 Switched Network Link Establishment Worksheet

X.21 Switched Network Link Establishment Worksheet	
Note to operator: The instructions in the <i>5494 Remote Control Unit User's Guide</i> tell you how to use this information to establish a link to your AS/400 system.	
Section 1. Connection to primary system:	
Check one:	
<input type="checkbox"/> NO OPERATOR ACTION NEEDED.	
<input type="checkbox"/> Use parameters below for H1, H2, H3, or H4 AS/400 system. (Circle one)	
Section 2. Connect to one of the AS/400 systems using the parameters circled or listed below:	
H1 AS/400 system 1 familiar name	_____
A Select one: (initiate call, answer call)	_____
B H1 AS/400 system 1	_____
H2 AS/400 system 2 familiar name	_____
A Select one: (initiate call, answer call)	_____
B H2 AS/400 system 2	_____
H3 AS/400 system 3 familiar name	_____
A Select one: (initiate call, answer call)	_____
B H3 AS/400 system 3	_____
H4 AS/400 system 4 familiar name	_____
A Select one: (initiate call, answer call)	_____
B H4 AS/400 system 4	_____
Section 3. Description of facility registration:	
A Facility name	_____
B Facility code and parameters	_____
A Facility name	_____
B Facility code and parameters	_____
A Facility name	_____
B Facility code and parameters	_____
A Facility name	_____
B Facility code and parameters	_____
Note: If your current connection to an AS/400 system is active, the 5494 must be varied offline at that AS/400 system before a new connection is attempted.	

6.2.2 Instructions for Completing the X.21 Switched Network Link Establishment Worksheet

Circle the correct choice or fill in the blanks on the worksheet.

Subtopics:

- [6.2.2.1 Section 1](#)
 - [6.2.2.2 Section 2](#)
 - [6.2.2.3 Section 3](#)
-

6.2.2.1 Section 1

Section 1 requests information for your primary AS/400 system. If you are placing a call to the primary AS/400 system, the operator must initiate the call. If the 5494 is answering a call, no operator action is required.

6.2.2.2 Section 2

For each of your AS/400 systems (H1 to H4), provide the following information.

Fill in a *familiar name* for each of your AS/400 systems. This is the name that the 5494 user relates to a particular AS/400 system.

For example, the AS/400 system LU Name for H1:1 may be *SYSNAME* but the name that the 5494 users may refer to is *Oslo 1*. Therefore, you would enter *Oslo 1* as the familiar name. See page [D.0](#) for an example.

A

Will the operator be initiating the call or answering the call?

B

This is the configured AS/400 system with which you are attempting to establish the link.

6.2.2.3 Section 3

Section 3 is used for online facility registration. You may have one or more user facilities that you need to register for at different times. For each, provide the following information.

A

Enter the name of the facility.

B

Enter the X.21 switched facility code and parameters required exactly the way your network expects them. Obtain them from your network supplier. For example, you would enter **63/1-+** to activate the redirection of call facility.

The X.21 Switched Network Link Establishment Worksheet is complete.

6.3 X.25 Network Link Establishment

Use this worksheet in conjunction with the *5494 User's Guide* to initiate the connection with your AS/400 system.

Subtopics:

- [6.3.1 X.25 Network Link Establishment Worksheet](#)
- [6.3.2 Instructions for Completing the X.25 Network Link Establishment Worksheet](#)

6.3.1 X.25 Network Link Establishment Worksheet

If the 5494 is connecting to one or two AS/400 systems, you need the first page of the worksheet. If the 5494 is connecting to three or four AS/400 systems, you need both pages of the worksheet.

X.25 Network Link Establishment Worksheet--Page 1	
Note to operator: The instructions in the <i>5494 Remote Control Unit User's Guide</i> tell you how to use this information to establish a link to your AS/400 system.	
Section 1. Connection to primary system:	
Check one:	
<input type="checkbox"/> NO OPERATOR ACTION NEEDED. <input type="checkbox"/> Use parameters below for H1, H2, H3, or H4 AS/400 system. (Circle one)	
Section 2. Connect to one of the AS/400 systems using the parameters circled or listed below or on the next page:	
H1 AS/400 system 1 familiar name	_____
A H1 AS/400 system 1	_____
B Connection type: (initiate SVC call, answer SVC call, or open PVC)	_____
All remaining parameters (C through L) are optional.	
C Password (X)	_____
D Logical channel identification (L)	_____
E Network user identification (I)	_____
F User group (U)	_____
G Reverse charging (R) (Yes or No)	_____
H Facilities (F)	_____
I Logical link override (QLLC (Q) or ELLC (E)) ELLC recovery value:	_____
J Address extension (T):	_____

Called address	_____
Calling address	_____
K Window size (W)	_____
L Packet size (P) (064, 128, 256, 512, or 1024)	_____
H2 AS/400 system 2 familiar name	_____
A H2 AS/400 system 2	_____
B Connection type: (initiate SVC call, answer SVC call, or open PVC)	_____
All remaining parameters (C through L) are optional.	_____
C Password (X)	_____
D Logical channel identification (L)	_____
E Network user identification (I)	_____
F User group (U)	_____
G Reverse charging (R) (Yes or No)	_____
H Facilities (F)	_____
I Logical link override (QLLC (Q) or ELLC (E)) ELLC recovery value:	_____
J Address extension (T):	_____
Called address	_____
Calling address	_____
K Window size (W)	_____
L Packet size (P) (064, 128, 256, 512, or 1024)	_____

Note: If your current connection to AS/400 system is active, the 5494 must be varied offline at that AS/400 system before a new connection is attempted.

X.25 Network Link Establishment Worksheet--Page 2	
Note to operator: The instructions in the 5494 Remote Control Unit User's Guide tell you how to use this information to establish a link to your AS/400 system.	
Section 2. Connect to one of the AS/400 systems using the parameters circled or listed below or on the previous page:	
H3 AS/400 system 3 familiar name	_____
A H3 AS/400 system 3	_____
B Connection type: (initiate SVC call, answer SVC call, or open PVC)	_____
All remaining parameters (C through L) are optional.	_____
C Password (X)	_____
D Logical channel identification (L)	_____
E Network user identification (I)	_____
F User group (U)	_____
G Reverse charging (R) (Yes or No)	_____
H Facilities (F)	_____
I Logical link override (QLLC (Q) or ELLC (E)) ELLC recovery value:	_____
J Address extension (T):	_____
Called address	_____
Calling address	_____
K Window size (W)	_____
L Packet size (P) (064, 128, 256, 512, or 1024)	_____
H4 AS/400 system 4 familiar name	_____
A H4 AS/400 system 4	_____
B Connection type: (initiate SVC call, answer SVC call, or open PVC)	_____
All remaining parameters (C through L) are optional.	_____
C Password (X)	_____

D	Logical channel identification (L)	_____
E	Network user identification (I)	_____
F	User group (U)	_____
G	Reverse charging (R) (Yes or No)	_____
H	Facilities (F)	_____
I	Logical link override (QLLC (Q) or ELLC (E)) ELLC recovery value:	_____
J	Address extension (T):	_____
	Called address	_____
	Calling address	_____
K	Window size (W)	_____
L	Packet size (P) (064, 128, 256, 512, or 1024)	_____

Note: If your current connection to an AS/400 system is active, the 5494 must be varied offline at that AS/400 system before a new connection is attempted.

6.3.2 Instructions for Completing the X.25 Network Link Establishment Worksheet

Circle the correct choice or fill in the blanks on the worksheet.

Subtopics:

- [6.3.2.1 Section 1](#)
- [6.3.2.2 Section 2](#)

6.3.2.1 Section 1

Section 1 requests information for your primary AS/400 system. If your circuit type is PVC only or SVC answer only and it is also configured for no manual options, no operator action is needed. For all other connections to the primary AS/400 system, the operator must initiate the connection.

6.3.2.2 Section 2

For each of your AS/400 systems (H1 to H4), provide the following information.

Fill in a *familiar name* for each of your AS/400 systems. This is the name that the 5494 operator relates to a particular AS/400 system.

For example, the AS/400 system LU Name for H1:1 may be *SYSNAME* but the name that the local operators may refer to is *Chicago 1*. Therefore, you would enter *Chicago 1* as the familiar name. See page [D.0](#) for an example.

A

This is the configured AS/400 system with which you are attempting to establish the link.

B

Will the operator initiate an SVC call, answer an SVC call, or open a PVC?

All of the remaining parameters (C through L) are optional.

Note: The letter on the worksheet following the name for the parameter requested (for example, the X after Password) is used to identify the parameter when an NWS is used to establish the link. Instructions for establishing a link using an NWS or a PWS are provided in the *5494 Remote Control Unit User's Guide*.

C

Enter your X.25 connection password. A password must consist of 1 to 8 alphanumeric characters. If fewer than 8 characters are entered, the remaining spaces are padded with blanks. A password is valid for SVC call initiation or call answer. The password is included in the outgoing call if used with call initiation or to verify a password in an incoming call with call answer.

If used, this password must match the configured password on the AS/400 system.

D

Enter your logical channel identification in hexadecimal form. The ID must be exactly 3 characters long. The valid range is X'001' to X'FFF'. This value is used to override the configuration value for a particular circuit. The value can be used during manual PVC open, SVC call, or SVC answer.

The next group of optional parameters (E through J) are used if your 5494 is configured for manual options allowed.

E

Enter your network user identification. This is valid for SVC call initiation or answering, but is not valid for a PVC.

F

Enter your closed user group number. This is valid for SVC call initiation only.

G

Indicate whether you want to generate a reverse charging request with this call. Reverse charging is valid for SVC call initiation only.

H

Indicate any additional facilities you want to request from your network for this call. Enter valid facility codes and parameters from CCITT Recommendation X.25. Additional facilities are valid for SVC call initiation only.

I

Select QLLC or ELLC to cause an override of the configured value for this circuit request only. If ELLC is selected, a recovery value for the link timer 1 (LT1) for the ELLC layer must also be entered. This value is a number in the range of 100 to 999 and represents 10 to 99.9 seconds. This is valid for SVC call initiation and PVC circuit open requests.

Note: The LLC type chosen here must match that used by the AS/400 system.

J

This entry generates a CCITT-specified facility for extended addressing. Both addresses must be provided. Each address may be a maximum of 40 digits and only characters 0 to 9 are allowed. This is valid for SVC call initiation only.

The next two optional parameters (K and L) are used if your 5494 is configured for both manual options and flow control negotiations allowed.

K

This entry specifies an override for the configured packet window size for this circuit request only. The parameter must be a number in the range of 2 to 7 for modulo 8 packet sequence numbering, or a number in the range of 2 to 15 for modulo 128 packet sequence numbering. This is valid for all circuit types.

L

This entry specifies an override for the configured packet size for this circuit request only. Make sure that your subscription allows this packet size. Circle the correct value. This is valid for all circuit types.

The X.25 Network Link Establishment Worksheet is now complete.

6.4 Token-Ring, Ethernet, or Frame Relay Network Link Establishment

Use this worksheet in conjunction with the *5494 User's Guide* to initiate the connection with your AS/400 system.

Subtopics:

- [6.4.1 Token-Ring, Ethernet, or Frame Relay Network Link Establishment Worksheet](#)
- [6.4.2 Instructions for Completing the Token-Ring, Ethernet, or Frame Relay Link Establishment Worksheet](#)

6.4.1 Token-Ring, Ethernet, or Frame Relay Network Link Establishment Worksheet

Token-Ring, Ethernet, or Frame Relay Network Link Establishment Worksheet	
Note to the operator: The instructions in the <i>5494 Remote Control Unit User's Guide</i> tell you how to use this information to establish a link to your AS/400 system.	
Section 1. Connection to primary system:	
NO OPERATOR ACTION NEEDED.	
Section 2. Connect to one of the AS/400 systems using the parameters listed below:	
H1 AS/400 system 1 familiar name	_____
A Connect	
B H1 AS/400 system 1	
H2 AS/400 system 2 familiar name	_____
A Connect	

B	H2 AS/400 system 2
H3 AS/400 system 3 familiar name	_____
A	Connect
B	H3 AS/400 system 3
H4 AS/400 system 4 familiar name	_____
A	Connect
B	H4 AS/400 system 4
Note: If your current connection to an AS/400 system is active, the 5494 must be varied offline at that AS/400 system before a new connection is attempted.	

6.4.2 Instructions for Completing the Token-Ring, Ethernet, or Frame Relay Link Establishment Worksheet

Fill in the blanks on the worksheet.

Subtopics:

- [6.4.2.1 Section 1](#)
- [6.4.2.2 Section 2](#)

6.4.2.1 Section 1

Section 1 requests information for your primary AS/400 system. For all Token-Ring, Ethernet, or Frame Relay connections to the primary AS/400 system, no operator action is needed.

6.4.2.2 Section 2

For each of your AS/400 systems (H1 to H4), provide the following information.

Fill in a *familiar name* for each of your AS/400 systems. This is the name that the 5494 user relates to a particular AS/400 system.

For example, the AS/400 system LU Name for H1:1 may be *SYSNAME* but the name that the 5494 users may refer to is *Main System*. Therefore, you would enter *Main System* as the familiar name. See page [D.0](#) for an example.

| **A**

The process is "connect."

B

This is the configured AS/400 system with which you are attempting to establish a link.

The Token-Ring, Ethernet, or Frame Relay Network Link Establishment Worksheet is complete.

7.0 Topic 7. Planning for Concurrent Host Attachment

| The 5494 can be configured to communicate concurrently with up to four AS/400 systems over a single data link level connection. PWSs attached to the same 5494 have always been able to communicate with different AS/400 systems in the communication network. Now, concurrent host attachment extends this capability to NWS displays and printers without the use of AS/400 display station or printer passthrough. Concurrent host attachment uses the SNA session level routing capabilities of an APPN network or an SNA subarea network to reach multiple AS/400 systems in the network.

Subtopics:

- [7.1 AS/400 System Considerations](#)
 - [7.2 5494 Configuration Considerations](#)
 - [7.3 Display Operations](#)
 - [7.4 Printer Operations](#)
-

7.1 AS/400 System Considerations

The 5494 can provide concurrent host attachment when the configured AS/400 systems are interconnected with an appropriate communication network. The network can be an APPN network or an SNA subarea network. The AS/400 systems may be APPN network nodes if they do APPN network routing, or they can be APPN end nodes. There must be a route through the network for the flow of LU 6.2 session traffic between the 5494 and each AS/400 system. The 5494 must be configured on each AS/400 system with which it is intended to communicate, but this configuration is the same with or without concurrent host attachment.

7.2 5494 Configuration Considerations

There are configuration parameters on the Network Information Worksheet for concurrent host attachment. The parameters allow you to enable or disable concurrent host attachment and set the printer sharing timeout. Printer sharing can also be disabled.

Each AS/400 system the 5494 contacts must be configured in the 5494 (H1-H4). One of the AS/400 systems configured in the 5494 must be designated as the primary host. This AS/400 system takes on a special role with the 5494.

- The 5494 will accept code maintenance updates (AS/400 PTFs for the 5494) only from the primary host.
- The 5494 sends error log data only to the primary host.

- The 5494 attempts to send alerts to the primary host. If the primary host controller session becomes inactive, an alternate host with an active controller session is selected to receive alerts until the primary host controller session becomes active again.

For all hosts, the 5494 attempts to keep the controller session active as long as there is a device active for that host. The 5494 also attempts to keep the primary host controller session active whenever any alternate host controller session is active so alerts and error log information can be sent to the primary host.

In addition, you can elect on the Network Information Worksheet to immediately activate and keep active the 5494's controller session with each host. If you elect to immediately activate and keep active an alternate host, then the first user to use the alternate host will not have to wait for activation of the controller session with that host before receiving a sign-on screen. However, network charges for keeping a link active for the controller session when no one is using the alternate host must be considered.

7.3 Display Operations

Each display has a default AS/400 system. This is the AS/400 system from which the display will get a sign-on screen when it is powered on. The first time you use Release 3.1 in your 5494, the default host for each display will be the 5494's primary host.

The user can enter a SYSREQ command at the display to change the default host for that display. A SYSREQ command can also be used to switch temporarily to another host without changing the default host for that display.

Instructions for changing the default host for switching hosts can be found in the *5494 Remote Control Unit User's Guide*.

Single address displays can communicate with only one host at a time. Before switching to another host, return to the sign-on screen for the current host. Displays that use shared addressing can communicate with a different host on each shared session if the AS/400 system supports shared addressing displays (Version 3 Release 1 or later). Only the base session of a shared address display can communicate with the AS/400 systems that do not support shared address displays. Displays that use multiple addresses for additional sessions may also communicate with a different host on each session. The default host can be set independently for each session on a shared or multiple address display.

7.4 Printer Operations

When you configure the 5494 for concurrent host attachment, you can also configure the 5494 to enable or disable printer sharing.

With printer sharing enabled, printers attached to the 5494 can be shared by up to four AS/400 systems. When the writer on one AS/400 system has ended for a printer, the 5494 starts the printer sharing timeout. When the timeout expires, a writer on another AS/400 system can be started and can begin printing without requiring any reconfiguration of the printer or the 5494.

Printer sharing can also be disabled when using concurrent host attachment. In this case each printer can be dedicated to any of the four configured AS/400 systems by using a SYSREQ command from a 5494-attached NWS display. Instructions for changing the host for a printer can be found in the *IBM 5494 Remote Control Unit User's Guide*.

| 8.0 Topic 8. Planning for a Frame Relay Token-Ring (FR-TR) Bridge

| The 5494 supports source route bridging between the 5494-attached
| token-ring LAN and remote LANs using the frame relay protocol over a
| point-to-point connection or through a frame relay network connection.

| **Note:** In order to use the Frame Relay Token-Ring Bridge feature, you must
| also install the 5494 Memory Expansion Feature.

Subtopics:

- [8.1 What is a Bridge?](#)
 - [8.2 5494 Bridging Support](#)
 - [8.3 Configuration Considerations](#)
-

| 8.1 What is a Bridge?

| A bridge can be used to connect two or more LAN segments together,
| allowing users on different LAN segments to communicate across the bridge
| as if they were all on the same LAN segment. Bridges can thus create a
| logical LAN, sometimes referred to as a bridged LAN.

| Source route bridging is the standard method of bridging for token-ring
| LANs. Source route bridging is implemented by most bridge products that
| support the token-ring protocol. It requires that the source of a
| token-ring frame specify the path over which the frame must be transmitted
| rather than require the bridge to determine the path.

| Additional information can be found in the *IBM Multisegment LAN Design
Guidelines* regarding source route bridging and the various protocols
| involved.

| 8.2 5494 Bridging Support

| The 5494 supports bridging on up to four configured frame relay DLCIs.
| This allows the 5494 to send and receive bridged LAN traffic through a

| frame relay network with up to four bridge partners at a time. The bridge
| partner can be an IBM AS/400, IBM 2210, IBM 6611, or a PC running IBM
| RouteXpander/2.

| The AS/400 does not provide a true bridging function. It can, however,
| route traffic received from the 5494 on the bridged connection based on
| the network layer data in the bridged frame. OS/400 V3R1, V3R2, V3R6, and
| V3R7 support the routing of SNA and IP. OS/400 V3R1, V3R2, and V3R7 also
| support the routing of IPX. For other bridge partners, the bridged
| token-ring frame can contain any networking layer protocol (for example,
| IP or IPX) that the bridge partner can handle.

| The 5494 supports both manual and automatic spanning tree protocols. It
| supports a maximum of 7 hops. The 5494 supports a bridged frame size of
| 1500 bytes. The 5494 does not support fragmentation. Any frame having a
| size greater than 1500 bytes plus headers will be discarded.

| The 5494 Utility Program provides you with Source Route Bridging Status.
| You can access this status when the utility program is communicating with
| the 5494 using remote or direct access. Included in this status are
| inbound and outbound frame summaries, as well as counts of types of frames
| (such as Spanning Tree Explorer), and error frames. From this program you
| can also clear the counters and stop or start frame forwarding.

| These counters and functions are also available from 5494 Concurrent
| Diagnostics. The counters and counter clearing are available from the
| 5494 Op Panel.

| **8.3 Configuration Considerations**

| There are specific considerations for configuring the 5494 for FR-TR
| bridging.

Subtopics:

- [8.3.1 Line Speeds and Ring Speeds](#)
 - [8.3.2 Ring Numbers](#)
 - [8.3.3 Bridge Filtering](#)
-

| **8.3.1 Line Speeds and Ring Speeds**

| The 5494 provides bridging to allow you to use other protocols in addition

| to SNA on the workstations attached to the token ring. It can be used as
| a feeder node to a more powerful bridge or router.

| When configuring line speed or ring speed, keep in mind that these
| parameters are used to calculate the relative path cost of the WAN or LAN.
| Using lower values for the speeds when configuring the 5494 will tend to
| send traffic over other routes (if available) that may be more powerful
| and better equipped to handle large amounts of traffic.

| 8.3.2 Ring Numbers

| All bridge partners on the frame relay network must use the same ring
| number for the frame relay virtual LAN.

| 8.3.3 Bridge Filtering

| Although it is not absolutely necessary to create bridge filters,
| token-ring speeds are much faster than the frame relay speeds available on
| the 5494. A high volume of LAN traffic trying to cross the FR-TR Bridge
| can strain or deplete the 5494's resources. This can cause some
| undesirable results, such as overflowing buffers, lost connections, and
| response delays for 5250 devices. Furthermore, depending on how you are
| billed for your frame relay traffic, unnecessary traffic can cost you
| money.

| The 5494 uses a bridge filter to limit traffic in either or both
| directions. The bridge filter lets you specify precisely the kinds of
| frames that may cross the bridge. You can form your filter by including
| those things you want to cross, exempting those things you do not want to
| cross, or some combination of both.

| Not everyone must filter. If your frame relay connection is capable of
| speeds greater than 64 Kbps, you might forego filtering until you detect a
| real need for it. The need for filtering is usually indicated by network
| congestion and poor response times.

| The requirements for a 5494 FR-TR Bridge filter are similar to the
| requirements for an IBM RouteXpander/2 filter. Examples of filtering are:

- | Source route types such as Spanning Tree Explorer frames, All Routes
| Explorer frames or Specifically Routed frames

- | Hop counts exceeding a specific number
 - | A destination or source address, possibly with a mask to identify
| specific bits
 - | Frame data using a specific offset, possibly with a mask to identify
| specific bits
- | Each individual filter element is called a criterion. Multiple criteria
| are combined into a criteria list using boolean algebra techniques.
- | The actual bridge filter file is an ASCII file. It can be created with
| any PC editor. Specific directions and actual keywords for producing a
| bridge filter file are in the *5494 User's Guide*.
-

A.0 Appendix A. Safety Notices

This appendix lists all of the safety notices used in this manual. It includes both danger and caution notices.

Subtopics:

- [A.1 Danger Notices](#)
 - [A.2 Caution Notices](#)
-

A.1 Danger Notices

Subtopics:

- [A.1.1 U.S. English](#)
 - [A.1.2 Belgian Dutch](#)
 - [A.1.3 Brazilian Portuguese](#)
 - [A.1.4 Canadian French](#)
 - [A.1.5 Chinese](#)
 - [A.1.6 Danish](#)
 - [A.1.7 Finnish](#)
 - [A.1.8 French](#)
 - [A.1.9 German](#)
 - [A.1.10 Italian](#)
 - [A.1.11 Japanese](#)
 - [A.1.12 Korean](#)
 - [A.1.13 Norwegian](#)
 - [A.1.14 Portuguese](#)
 - [A.1.15 Spanish](#)
 - [A.1.16 Swedish](#)
-

A.1.1 U.S. English

DANGER

Never work on equipment, or connect or disconnect signal cables during periods of lightning activity.

A.1.2 Belgian Dutch

Gevaarlijk

Werk nooit aan een machine en koppel nooit signaalkabels los of vast tijdens een onweer.

A.1.3 Brazilian Portuguese

PERIGO

Nunca trabalhe em equipamento, ou conecte ou desconecte cabos de sinal durante relâmpagos e trovoadas.

A.1.4 Canadian French

Danger

Ne travaillez jamais sur une machine, ni ne connectez ou déconnectez de câbles de transmission pendant un orage.

A.1.5 Chinese

A.1.6 Danish

Pas på!

Man må hverken arbejde med udstyret eller tilslutte eller afbryde signal-kabler i tordenvejr.

A.1.7 Finnish**VAARA**

Älä työskentele ohjaimella, irrota tai kytke liitintäkaapeleita salamoinnin aikana.

A.1.8 French**Danger**

N'effectuez aucune manipulation sur le 5494 et ne connectez ou ne déconnectez aucun câble d'interface pendant un orage.

A.1.9 German**VORSICHT**

Bei Gewittern dürfen keine Arbeiten am Gerät vorgenommen und keine Kabel angeschlossen oder gelöst werden.

A.1.10 Italian**Pericolo**

Durante un temporale, non operare mai sulle apparecchiature o collegare o scollegare i cavi segnali.

A.1.11 Japanese

危険

雷が発生している間は、けっして機器を操作したり、あるいは信号ケーブルの接続、切り離しはしないでください。

A.1.12 Korean

위험

번개는 동안 신호 케이블을 연결 또는 단절시키지 마시오.
또한 장비도 사용하지 마시오.

A.1.13 Norwegian

FARE!

Arbeid aldri med utstyr når det er fare for lynnedslag. I slike tilfeller må du hverken trekke ut signalkabler eller kople noen til.

A.1.14 Portuguese

PERIGO

Não trabalhe nunca em equipamento, nem ligue ou desligue cabos de sinal, durante períodos de trovoadas.

A.1.15 Spanish

PELIGRO

Nunca trabaje con el equipo, ni conecte o desconecte cables de señal durante períodos en los que existe actividad meteorológica de rayos.

A.1.16 Swedish

Varning

Arbeta aldrig med utrustning eller signalkablar vid åskväder.

A.2 Caution Notices

Subtopics:

- [A.2.1 U.S. English](#)
 - [A.2.2 Belgian Dutch](#)
 - [A.2.3 Brazilian Portuguese](#)
 - [A.2.4 Canadian French](#)
 - [A.2.5 Chinese](#)
 - [A.2.6 Danish](#)
 - [A.2.7 Finnish](#)
 - [A.2.8 French](#)
 - [A.2.9 German](#)
 - [A.2.10 Italian](#)
 - [A.2.11 Japanese](#)
 - [A.2.12 Korean](#)
 - [A.2.13 Norwegian](#)
 - [A.2.14 Polish](#)
 - [A.2.15 Portuguese](#)
 - [A.2.16 Slovenia](#)
 - [A.2.17 Spanish](#)
 - [A.2.18 Swedish](#)
-

A.2.1 U.S. English

CAUTION:

For your safety, you must connect equipment only to a properly wired and grounded outlet. An improperly wired outlet can place hazardous voltage on accessible metal parts of the equipment. The customer is responsible for outlet wiring.

If it becomes necessary to change the power cord, order a new power cord from your IBM sales representative. If the outlet is improperly wired, have the change made according to local or national code.

A.2.2 Belgian Dutch

Let op:

Uit veiligheidsoverwegingen moet de machine steeds worden aangesloten op een degelijk bedraad en geaard stopcontact. Bij een slecht bedraad stopcontact kunnen aanraakbare metalen delen van de machine onder een gevaarlijke spanning komen te staan. De klant is verantwoordelijk voor de bedrading van het stopcontact.

Wanneer u het netsnoer moet vervangen, bestelt u een nieuw netsnoer bij uw IBM-verkoopsafgevaardigde. Wanneer het stopcontact niet correct bedraad is, moet u het laten aanpassen volgens de wettelijke voorschriften.

A.2.3 Brazilian Portuguese

CUIDADO:

Para sua segurança, somente conecte equipamentos à tomadas aterradas e com fiação adequada. Uma tomada com fiação inadequada pode causar voltagem perigosa em partes metálicas do equipamento às quais você tem acesso. O cliente é responsável pela fiação da tomada.

Se for necessário mudar o cabo de força, peça um novo ao seu representante IBM. Se a tomada tiver fiação inadequada, troque-a de acordo com a legislação local ou federal.

A.2.4 Canadian French

Attention:

Pour la sécurité de l'utilisateur, la machine doit toujours être branchée sur une prise de courant correctement câblée et mise à la terre. Une prise mal câblée peut provoquer une tension dangereuse sur des parties métalliques accessibles de la machine. Le client est responsable du câblage de la prise.

S'il est nécessaire de remplacer le cordon d'alimentation, commandez-en un nouveau auprès de votre délégué commercial IBM. Si le câblage de la prise est incorrect, procédez aux modifications nécessaires conformément aux règlements légaux.

A.2.5 Chinese

A.2.6 Danish

NB

Af sikkerhedshensyn skal kontrolenheden tilsluttes en korrekt monteret jordforbundet stikkontakt. En forkert forbundet stikkontakt kan forårsage farlig spænding på tilgængelige metaldele i udstyret. Kunden har ansvaret for installation af stikkontakten.

Hvis stikkontakten er forkert forbundet, kontaktes en autorisieret el-installatør. En ny netledning bestilles hos IBM-forhandleren.

A.2.7 Finnish

VAARA

Verkkojohdon saa kytkeä vain maadoitettuun pistorasiaan. Maadoittamattoman pistorasin käyttö saattaa aiheuttaa vaarallisen jännitteenvirtauksen metalliosiin. Asiakas on vastuussa pistorasin asianmukaisuudesta.

Jos verkkokohto on vioittunut, tilaa IBM:stä uusi. Ellei pistorasia ole maadoitettu, tilaa maadoitustyö.

A.2.8 French

Attention:

Une prise d'alimentation mal installée ou un mauvais câblage de la prise de raccordement peuvent provoquer une mise sous tension dangereuse des parties métalliques du contrôleur. Le client est responsable de l'installation de la prise d'alimentation qui doit être correctement câblée et mise à la terre, afin d'éviter tout choc électrique.

1. S'il est nécessaire de changer le cordon d'alimentation, commandez-en un neuf à IBM.
2. Si la prise d'alimentation n'est pas correctement cablée, changez-la en respectant les normes en vigueur dans votre pays.

A.2.9 German

ACHTUNG:

Gerät nur an Schutzkontaktsteckdose mit einwandfrei geerdetem Schutzkontakt anschließen. Bei nicht ordnungsgemäß angeschlossener Netzsteckdose können an berührbaren Metallteilen des Gerätes gefährliche Berührungsspannungen auftreten. Für den einwandfreien Zustand der Steckdose ist der Betreiber verantwortlich.

Müssen Netzanschlußleitung bzw. -stecker ersetzt werden, oder zeigen sich Schäden bzw. Mängel an der Netzsteckdose, müssen die entsprechenden Arbeiten von autorisiertem Fachpersonal durchgeführt werden. Netzanschlußleitungen können beim IBM Vertriebsbeauftragten bestellt werden.

A.2.10 Italian

Attenzione:

Per la sicurezza dell'utente, collegare le apparecchiature solo ad una presa correttamente cablata e munita di collegamento a terra. Una presa che non sia correttamente cablata può portare tensioni pericolose sulle parti metalliche accessibili delle apparecchiature. E' responsabilità del cliente assicurarsi che la presa sia correttamente cablata.

Se è necessario sostituire il cavo di alimentazione, ordinarlo presso un rappresentante IBM. Se la presa non è correttamente cablata, farla sostituire con una conforme alle norme locali o nazionali.

A.2.11 Japanese

注意:

安全のために、機器は正しく配線された接地（アース）極付きの電源コンセントに接続してください。電源コンセントの誤配線により、機器の金属部分に危険な電圧が生ずることがあります。コンセントの配線はお客様の責任で行ってください。

電源コードを取り替える必要がある場合は、IBM営業担当員に新しい電源コードを発注してください。コンセントが間違って配線されている場合は、関連法規にしたがって変更していただきます。

A.2.12 Korean

주의 :

안전을 위해서, 장비를 물바ruit나 배선된 전원 공급구에 접지시오.
전원 공급구의 배선은 장비의 금속부분에 위험한 전압을 발생
시킬 수 있습니다. 위의 사항은 고내의 책임입니다.

새로운 전원코드로 교체해야될 경우에는 IBM 영업부로 주문하면
됩니다. 만약, 전원 공급구나 잘못 배선되어 있으면 물바른 나라 또는
국제공인 코드에 맞게 바꿔 주십시오.

A.2.13 Norwegian

FORSIKTIG:

For din egen sikkerhets skyld må du bare kople utstyret til en korrekt jordet stikkontakt. Hvis stikkontakten ikke er montert på godkjent måte, kan det forårsake farlige spenninger på berørbare metallflater. Kunden har ansvaret for at stikkontakten er forsvarlig koplet.

Hvis nettledningen må byttes ut, kan du bestille en ny fra din IBM-forhandler. Hvis stikkontakten ikke er forsvarlig montert, må dette gjøres i overensstemmelse med myndighetenes forskrifter om dette.

A.2.14 Polish

UWAGA!

Nie serwisować urządzenia, oraz nie włączać ani wyłączać kabli sygnalowych podczas świecenia się lampek kontrolnych.

A.2.15 Portuguese**CUIDADO:**

Para sua segurança, o equipamento só deverá ser ligado a uma tomada com os fios montados correctamente e com boa ligação de terra. Uma tomada com os fios montados incorrectamente poderá provocar o aparecimento de voltagens perigosas em partes metálicas, facilmente acessíveis, do equipamento. O cliente é responsável pela montagem dos fios da tomada e da ficha.

Se for necessário trocar o cabo de corrente eléctrica, encomende um novo ao seu representante IBM. Se a tomada estiver montada incorrectamente, peça que a reparação seja feita por um electricista qualificado segundo as leis locais.

A.2.16 Slovenia**POZOR:**

Za vašo varnost, lahko priključite napravo samo na pravilno označeno in ozemljeno vtičnico. Vzrok ne pravilno označene vtičnice je lahko, nevarna napetost na dostopnih metalnih delih naprave. Stranka je odgovorna za pravilno označenje vtičnice.

Če je potrebno spremeniti napajalni kabel, naročite novega pri vašem IBM prodajnem predstavniku. Če je vtičnica nepravilno označena, naj bojo spremembe urejene v skladu z lokalnimi ali mednarodnimi predpisi.

A.2.17 Spanish**PRECAUCION:**

Para su seguridad, usted debe conectar el equipo solamente a un tomacorriente cableado y conectado a tierra correctamente. Un tomacorriente cableado en forma inadecuada puede ser la causa de la aparición de voltajes peligrosos en partes metálicas accesibles del equipo. El cliente es responsable del cableado del tomacorriente.

Si fuera necesario cambiar el cable de alimentación, encargue uno nuevo al representante de ventas de IBM. Si el tomacorriente estuviera cableado en forma inadecuada, proceda al cambio según el código local o nacional.

A.2.18 Swedish

Varngd:

Utrustningen måste anslutas till ett korrekt kopplat jordat eluttag. Ett felkopplat uttag kan medföra att utrustningens metallytor blir spänningsförande. IBM ansvarar inte för koppling av uttag.

Om nätkablen av någon anledning behöver bytas bör du beställa en ny kabel från IBM.

B.0 Appendix B. Configuring the AS/400 for Communication with the 5494

This appendix provides a brief overview of the steps required to configure the AS/400 to communicate with the 5494. For more information, refer to *AS/400 Communications: Configuration and AS/400 Remote Work Station Support*.

The parameter values required to configure the 5494 can be recorded on the configuration worksheets in this manual. Completed 5494 configuration worksheets are in [Appendix C](#) and [Appendix D](#). Blank configuration worksheets are located throughout the manual. (See [Appendix E, "Worksheet Master Copies Index."](#))

Notes:

1. Certain parameter values in the 5494 configuration must match the AS/400 configuration parameter values for the system to operate correctly. See [Table 15 in topic 5.3](#) for matching configuration parameters.
2. There are no AS/400 configuration changes required to use concurrent host attachment. The AS/400 system is configured the same as if the 5494 is communicating with only that AS/400 system.

Subtopics:

- [B.1 Configuring the AS/400](#)
 - [B.2 Connecting the Communication Links Example](#)
 - [B.3 Communicating with Your AS/400 System](#)
-

B.1 Configuring the AS/400

This section contains information necessary to configure the following components on the AS/400:

- Network interface (frame relay only)
- Line
- APPC controller
- Mode

- RWS controller
- NWS devices.

For the 5494, you need the following controller descriptions:

- An APPC controller description to support the 5494 controller functions and any PWS devices.
- An RWS controller description to support the 5494 controller functions and NWS devices.

On the AS/400 system, use the commands explained in the following sections.

Subtopics:

- [B.1.1 Using Automatic Configuration on the AS/400 System](#)
 - [B.1.2 Configuring a Frame Relay Network Interface](#)
 - [B.1.3 Configuring a Line to the Network](#)
 - [B.1.4 Configuring an APPC Controller](#)
 - [B.1.5 Configuring a Mode](#)
 - [B.1.6 Configuring an RWS Controller](#)
 - [B.1.7 Configuring Nonprogrammable Workstation Devices](#)
-

B.1.1 Using Automatic Configuration on the AS/400 System

The *APPC Controller* description can be automatically created by the AS/400 system when using a LAN or frame relay connection to the AS/400 system. Enable this support by setting AUTOCRTCTL to *YES in the line description.

In addition, with OS/400 Version 3 Release 1, the *RWS Controller* description can be automatically created by the AS/400 system when using any protocol. Enable this support by setting the system value autoconfigure remote controller (QAUTORMT) to ON (1). The 5494-attached *NWS Device* descriptions can also be automatically created by the AS/400 system. Enable this support by setting autocreate device (AUTOCRTDEV) to *ALL in the RWS controller description.

Refer to *AS/400 Remote Work Station Support* for more information.

B.1.2 Configuring a Frame Relay Network Interface

The AS/400 system uses the frame relay network interface description to describe the physical characteristics of the frame relay port.

The AS/400 system uses frame relay line descriptions to define the logical, or virtual connections. Each virtual connection, called a permanent virtual circuit (PVC) is identified by a DLCI number assigned by the frame relay network.

To create a network interface description, type **CRTNWIFR**.

Note: The network interface description may have already been created. To display the configuration, type **DSPNWIFR**.

The parameter, Network Interface Description (NWID) must match the attached nonswitched NWI (NWI) parameter within the AS/400 frame relay line description.

B.1.3 Configuring a Line to the Network

To create a line configuration to the network, type **CRTLINxxx**, where *xxx* is one of the following values:

- **TRN** for Token-Ring
- **ETH** for Ethernet
- **SDLC** for SDLC and X.21
- **X25** for X.25.
- **FR** for Frame Relay

Note: The line may have already been created if the AS/400 system is already communicating with the network. To display the line configuration, type **DSPLIND** and enter the name of the line.

If the 5494 is not adjacent to the target AS/400 system, you can use any line type that supports Advanced Peer-to-Peer Networking (APPN) traffic.

B.1.4 Configuring an APPC Controller

To create an APPC controller description, type **CRTCTLAPPC**. This description is used to connect the 5494 to the AS/400 system.

Note: This example assumes the 5494 is an ALS of the AS/400 system. If you are communicating through an SNA subarea or an APPN network, then an APPC controller description explicitly for the 5494 is not necessary. The AS/400 can use an existing network connection to communicate with the 5494.

```
Create Ctl Desc (APPC) (CRTCTLAPPC)

Type choices, press Enter.

Controller description . . . . . > NY5494           Name
Link type . . . . . . . . . . . > *SDLC 1          *FR, *IDLC, *LAN, *LOCAL...
Online at IPL . . . . . . . . . . *YES               *YES, *NO
Switched connection . . . . . . *NO                 *NO, *YES
Switched network backup . . . . *NO                 *NO, *YES
APPN-capable . . . . . . . . . *YES 2              *YES, *NO
Attached nonswitched line . . . > NYSDLC11        Name
Maximum frame size . . . . . . 1033 3              265-16393, 256, 265, 512..
Remote network identifier . . . *NETATR 4          Name, *NETATR, *NONE, *ANY
Remote control point . . . . . . > NY5494A 5      Name, *ANY
Exchange identifier . . . . . . > 6                00000000-FFFFFFFFFF
Data link role . . . . . . . . . *NEG               *NEG, *PRI, *SEC
Station address . . . . . . . . > 0A 7             00-FE
APPN CP session support . . . . > *NO 8          *YES, *NO
```

```

APPN node type . . . . . > *LENNODE 9      *ENDNODE, *LENNODE...
APPN transmission group number    1           1-20, *CALC
                                         More...
F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cancel
F13=How to use this display       F24=More keys

```

Figure 24. APPC Controller Description Example

Select your choices for this panel. The following parameters describe the APPC controller. AS/400 keywords are shown in parentheses.

1 Link type (LINKTYPE)

Select ***SDLC**, ***X25**, ***LAN**, or ***FR**. The value you select depends on the type of line you created when you configured the line to the network. Select ***SDLC** if you created an SDLC line, ***X25** if you created an X.25 line, ***LAN** if you created a Token-Ring or Ethernet line, or ***FR** if you created a frame relay line.

Note: [Figure 24](#) is an example of an SDLC APPC controller description. Other link types have different configuration parameters.

2 APPN-capable (APPN)

This parameter must be configured as ***YES**.

3 Maximum frame size (MAXFRAME)

The maximum frame size that the 5494 supports is 1033.

4 Remote network identifier (RMTNETID)

This parameter is the network ID where the 5494 is located. A value of ***NETADR** selects the network ID specified in the network attributes. **This value must match the 5494 network ID (NWS Field Hx:3) in the 5494 configuration.**

To display the network attributes, type **DSPNETA**

5 Remote control point (RMTCPNAME)

This parameter is the control point name of the 5494. This value is used to correlate the APPC controller to a specific RWS controller. **Because the 5494 is an ALS of the AS/400 system, this value must match the 5494 CP name (NWS Field 13) in the 5494 configuration.**

6 Exchange identifier (EXCHID)

If you are not using SDLC-switched, then this parameter is optional and can be left blank. If you are using SDLC-switched or additional security is needed, then this parameter must match the block ID and the ID number of the ALS. Because the 5494 is an ALS of the AS/400 system, use the following guidelines:

1. This parameter must begin with **X'073'**
2. If the 5494 ID number (NWS Field 19) is not an asterisk (*), then the remainder of this parameter must match the 5494 ID number
3. If the 5494 ID number is an asterisk (*) and the 5494 is not LAN-attached to the AS/400 system, then this parameter must be **073000xx**, where **xx** is the 5494 station address (NWS Field 2)
4. If the 5494 ID number is an asterisk (*) and the 5494 is LAN-attached, then this parameter must be **07300000**.

7 Station address (STNADR)

Select a value from X'01' to X'FE' for the station address when communicating with the 5494. **Because the 5494 is an ALS of the AS/400 system, this value must match the 5494 station address (NWS Field 2).**

8 APPN CP session support (CPSSN)

Select ***NO**. The 5494 does not support a CP session.

9 APPN node type (NODETYPE)

Select ***LENODE**. The 5494 communicates with the AS/400 system as a LEN node.

B.1.5 Configuring a Mode

OS/400 has an IBM-supplied mode QRMTWSC for the 5494. QRMTWSC provides support for 28 NWS sessions in Version 2 Release 2 and 56 NWS sessions in Version 2 Release 3, and later. If the mode QRMTWSC existed prior to installing Version 2 Release 3, or later, then it will need to be modified to support 56 devices.

The following parameters describe the mode. AS/400 keywords are shown in parentheses.

Locally controlled sessions (LCLCTLSSN)

This field value is the number of NWSs that the 5494 can support (28 or 56).

Maximum sessions (MAXSSN)

This field value is 1 greater than the value for the LCLCTLSSN field (29 or 57).

Pre-established sessions (PREESTSSN)

This field value is the number of sessions established to the 5494 when the connection is completed. If using concurrent host attachment, this should be 0.

Notes:

1. To create a mode description that matches the mode description of the 5494, type **CRTMODD**.
 2. To display a mode description, type **DSPMODD**.
 3. To change a mode description, type **CHGMODD**.
-

B.1.6 Configuring an RWS Controller

The RWS controller description can be created automatically. Refer to "[Using Automatic Configuration on the AS/400 System](#)" in topic [B.1.1](#) for more information.

To create an RWS controller description, type **CRTCTLRWS**. The RWS controller description controls the NWS sessions and the controller session that transfers product information between the 5494 and the AS/400 system. The link type of ***NONE** and the

Remote Location Name parameter logically connect this controller to the APPC controller.

```
>Create Ctl Desc (Remote WS) (CRTCTLRWS)

Type choices, press Enter.

Controller description . . . . . > NY5494RWS 1 Name
Controller type . . . . . > 5494 2 3174, 3274, 5251, 5294...
Controller model . . . . . > 1 3 0,1,0001,2,0002,12,0012
Link type . . . . . > *NONE 4 *IDLC, *LAN, *NONE, *SDLC..
Online at IPL . . . . . *YES *YES, *NO
Remote location . . . . . > NY5494A 5 Name
Local location . . . . . *NETATR 6 Name, *NETATR
Remote network identifier . . . *NETATR 7 Name, *NETATR, *NONE
Autocreate device . . . . . *ALL 8 *ALL, *NONE
Switched disconnect . . . . . *YES 9 *YES, *NO
Text 'description' . . . . . *BLANK
```

Figure 25. RWS Controller Description Example

Select your choices for this panel. The following parameters describe the RWS controller. AS/400 keywords are shown in parentheses.

1 Controller description (CTLD)

Select the controller description name.

2 Controller type (TYPE)

Select **5494**.

3 Controller model (MODEL)

Select the model number of the 5494 controller. Select **2** if you have a LAN adapter installed; otherwise, select **1**.

This field is for reference only; the AS/400 system does not use it.

4 Link type (LINKTYPE)

Select ***NONE** to indicate LU 6.2 attachment. The controller description will not be physically attached to a line description.

5 Remote location (RMTLOCNAME)

Select the remote location name for this controller. This value is used to correlate the RWS controller with a specific APPC controller. **The remote location must match the 5494 LU name (NWS Field 12) in the 5494 configuration.**

6 Local location (LCLLOCNAME)

Select the local location name for this controller. A value of ***NETATR** causes the local location name specified in the network attributes to be used. **The local location must match the AS/400 LU name (NWS Field Hx:1) in the 5494 configuration.**

To display the network attributes, type **DSPNETA**

7 Remote network identifier (RMTNETID)

Select the remote network identifier for this controller. A value of *NETATTR causes the local network identifier specified in the network attributes to be used. **The remote network identifier must match the 5494 network ID (NWS Field Hx:3) in the 5494 configuration.**

To display the network attributes, type **DSPNETA**.

8 Autocreate device (AUTOCRTDEV)

In OS/400 Version 3 Release 1 or later, select ***ALL** if you would like device descriptions automatically created for this controller. Otherwise, select ***NONE**.

9 Switched disconnect (SWTDSC)

In OS/400 Version 3 Release 1 or later, select ***YES** if you would like this controller disconnected when the system determines that the last device is no longer in use. Otherwise, select ***NO**.

B.1.7 Configuring Nonprogrammable Workstation Devices

NWS device descriptions can be created automatically. Refer to ["Using Automatic Configuration on the AS/400 System"](#) in topic [B.1.1](#) for more information.

To configure a device description for each NWS attached to the 5494, type **CRTDEVDSP** to create a device description for displays, and **CRTDEVPRT** to create a device description for printers.

Subtopics:

- [B.1.7.1 Determining the LOCADR Parameter Value](#)

B.1.7.1 Determining the LOCADR Parameter Value

Before creating the display and printer device descriptions, determine the location address (LOCADR parameters) that must be defined for each device.

The value defined for the LOCADR parameter for the CRTDEVDSP and CRTDEVPRT commands is based on the device address and 5494 port assignments as shown in [Table 19](#).

Table 19. Local Location Addresses							
	Workstation Address						
	0	1	2	3	4	5	6
Port 0	00	01	02	03	04	05	06
Port 1	07	08	09	0A	0B	0C	0D
Port 2	0E	0F	10	11	12	13	14
Port 3	15	16	17	18	19	1A	1B
Port 4	1C	1D	1E	1F	20	21	22
Port 5	23	24	25	26	27	28	29
Port 6	2A	2B	2C	2D	2E	2F	30
Port 7	31	32	33	34	35	36	37

```

Create Device Desc (Display) (CRTDEVDSP)

Type choices, press Enter.

Device description . . . . . > NY348700           Name
Device class . . . . . > *RMT 1                 *LCL, *RMT, *VRT, *SNPT
Device type . . . . . > 3487                   3101, 3151, 3161, 3162...
Device model . . . . . > HA                     0, 1, 2, 4, 11, 12, 23...
Shared session number . . . . . 0      2             0, 1, 2, 3
Local location address . . . . . 00            00-FE
Online at IPL . . . . . *YES          *YES, *NO
Attached controller . . . . . NY5494RWS 3     Name
Drop line at signoff . . . . . *NO  4        *YES, *NO
Allow blinking cursor . . . . . *YES          *YES, *NO
Printer . . . . .           Name
Text 'description' . . . . . '3487 Device address 00 on NY5494RWS'

```

Figure 26. Device Description Example

Select your choices for this panel. The following parameters describe the controller devices. AS/400 keywords are shown in parentheses.

1 Device class (DEVCLS)

Select the class of the device attached to the remote controller. *RMT indicates that the device is attached to a remote controller.

2 Shared session number (SHRSSNNBR)

In OS/400 Version 3 Release 1 or later, this field specifies the shared session number for a twinaxial display station. This parameter is valid for device types which support shared addressing and is not present on other screens. A separate device description is required for each shared session. Select 0 for the base session and 1--3 for the additional shared sessions.

3 Attached controller (CTL)

Select the name you created for the RWS controller where the device is attached.

4 Drop line at signoff (DROP)

If the Switched disconnect (SWTDSC) parameter in the associated RWS controller description is *NO, the value in this field is ignored. Otherwise, this field determines whether or not signon screens remain on the displays after the last attached user signs off.

If you have a switched line anywhere between your 5494 and your AS/400 system, select *YES. This causes the AS/400 system to drop the switched line when the last user signs off. If the lines between the 5494 and the AS/400 system are nonswitched lines, select *NO so that the line is not dropped.

B.2 Connecting the Communication Links Example

The following example outlines the necessary steps that must be performed on the AS/400 system to connect a 5494 using the SDLC leased line (NYSDLC11), the APPC controller (NY5494), and the RWS controller (NY5494RWS). This example assumes the 5494 has already been configured and the NWS devices are already configured on the AS/400 system.

1. To vary on the RWS controller and devices, type **WRKCFGSTS *CTL NY5494RWS** and select option 1 beside the controller description.

Work with Configuration Status			SYSNAME
			03/17/93 17:38:30
Position to Starting characters			
Type options, press Enter.			
1=Vary on 2=Vary off 5=Work with job 8=Work with description			
9=Display mode status ...			
Opt	Description	Status	-----Job-----
1	NY5494RWS	VARIED OFF	
	NY348700	VARIED OFF	
	NY422401	VARIED OFF	

Figure 27. Initial RWS Controller Status

After a few seconds refresh the screen (**F5**). The following information appears:

Work with Configuration Status			SYSNAME
			03/17/93 17:38:30
Position to Starting characters			
Type options, press Enter.			
1=Vary on 2=Vary off 5=Work with job 8=Work with description			
9=Display mode status ...			
Opt	Description	Status	-----Job-----
	NY5494RWS	VARY ON PENDING	
	NY348700	VARY ON PENDING	
	NY422401	VARY ON PENDING	

Figure 28. RWS Controller Status After Being Varied On

2. To vary on the SDLC leased line (NYSDLC11) and its APPC controller (NY5494), type **WRKCFGSTS *LIN NYSDLC11** and select option 1 beside the line description.

```
Work with Configuration Status          SYSNAME
                                         03/17/93 17:38:30
Position to . . . . .      Starting characters

Type options, press Enter.
 1=Vary on   2=Vary off   5=Work with job   8=Work with description
 9=Display mode status ...

Opt  Description      Status      -----Job-----
 1    NYSDLC11        VARIED OFF
      NY5494          VARIED OFF
```

Figure 29. Initial SDLC Leased Line Status

After a few seconds, refresh the screen (**F5**). The following information appears:

```
Work with Configuration Status          SYSNAME
                                         03/17/93 17:38:30
Position to . . . . .      Starting characters

Type options, press Enter.
 1=Vary on   2=Vary off   5=Work with job   8=Work with description
 9=Display mode status ...

Opt  Description      Status      -----Job-----
 1    NYSDLC11        Active
      NY5494          VARY ON PENDING
```

Figure 30. SDLC Leased Line Status After Being Varied On

3. Insert the 5494 System diskette in the 5494, push the power button ON, and wait for the Ready indicator to light.

4. Switch the power ON for the attached NWS devices and start the PWSs.

The line status display appears, as shown:

Note: It may be necessary to press **F5** to refresh the screen.

Work with Configuration Status			SYSNAME		
			03/17/93 18:49:16		
Position to		Starting characters			
Type options, press Enter.					
1=Vary on 2=Vary off 5=Work with job 8=Work with description					
9=Display mode status ...					
Opt	Description	Status	-----Job-----		
NYSDLC11		ACTIVE			
NY5494		ACTIVE			
NY5494A		ACTIVE			
QRMTWSC	ACTIVE/TARGET	NY5494A	QUSER 028042		
QRMTWSC	ACTIVE/SOURCE	NY5494A	QUSER 028042		
QRMTWSC	ACTIVE/SOURCE	NY5494A	QUSER 028042		
NYDOSTW1		ACTIVE			
QPCSUPP	ACTIVE/TARGET	QXFSERV	NYID04 028045		
QPCSUPP	ACTIVE/TARGET	NYDOSTW1	NYID04 028046		

Figure 31. Final SDLC Leased Line Status

The RWS controller status appears, as shown:

Work with Configuration Status			SYSNAME		
			03/17/93 17:38:30		
Position to		Starting characters			
Type options, press Enter.					
1=Vary on 2=Vary off 5=Work with job 8=Work with description					
9=Display mode status ...					
Opt	Description	Status	-----Job-----		
NY5494RWS		ACTIVE			
NY348700		SIGNON DISPLAY			
NY422401		VARIED ON			

Figure 32. Final Status of the RWS Controller

- To display the virtual controller for the PWS, type **WRKCFGSTS *CTL QVIRCD***. The workstation function sessions (WFS) appear, as shown:

```

Work with Configuration Status          SYSNAME
                                         03/17/93 17:38:30
Position to . . . . . Starting characters

Type options, press Enter.
  1=Vary on   2=Vary off   5=Work with job   8=Work with description
  9=Display mode status ...

Opt Description Status -----Job-----
QVIRCD0001 ACTIVE
NYDOSTW1S1 SIGNON DISPLAY
NYDOSTW1S2 SIGNON DISPLAY

```

Figure 33. Virtual Controller Status for PWS

B.3 Communicating with Your AS/400 System

After configuring your AS/400 system and connecting the communication links, see [Topic 6, "Preparing the Network Link Establishment Worksheet"](#) to establish connection.

C.0 Appendix C. System Configuration Examples

This appendix provides examples that show sample parameters and worksheets for the following connections:

Token ring network	Page C.1
Ethernet network	Page C.2
SDLC leased line with Token-Ring Gateway	Page C.3
SDLC switched/V.25 bis autodial line with Ethernet Gateway	Page C.4
X.21 switched line	Page C.5
X.21 leased line	Page C.6
X.25 Permanent Virtual Circuit (PVC)	Page C.7
X.25 Switched Virtual Circuit (SVC)	Page C.8
Frame Relay with FR-TR Bridge	Page C.9
Concurrent Host Attachment Through an APPN Network	Page C.10
SDLC leased line through SNA subarea network	Page C.11
Token-Ring through SNA subarea network	Page C.12

For additional 5494 configuration examples, refer to *5494 and OS/2 Extended Services: Connecting Remote Entry User Groups with AS/400*.

The examples in this appendix assume the following software levels:

IBM Equipment	Software Level Required
AS/400 system	OS/400 Version 2 Release 1 (Modification Level 1 or higher)
Workstation (PWS)	DOS, PC Support/400 Version 2 Release 1 or higher

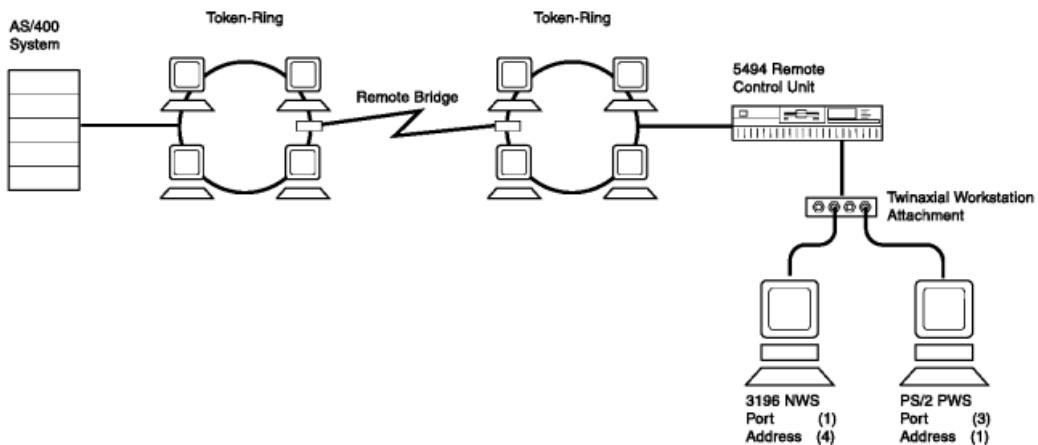
Note: These examples apply only to the specified software levels. IBM cannot guarantee that future software releases will support the examples described.

Subtopics:

- [C.1 AS/400 System Connection Using a Token-Ring Network](#)
- [C.2 AS/400 System Connection Using an Ethernet Network](#)
- [C.3 AS/400 System Connection Using an SDLC Leased Line with Token-Ring Gateway](#)
- [C.4 AS/400 System Connection Using an SDLC Switched/V.25 bis Autodial Line with Ethernet Gateway](#)
- [C.5 AS/400 System Connection Using an X.21 Switched Line](#)
- [C.6 AS/400 System Connection Using an X.21 Leased Line](#)
- [C.7 AS/400 System Connection Using an X.25 PVC](#)
- [C.8 AS/400 System Connection Using an X.25 SVC](#)
- [C.9 AS/400 System Connection Using a Frame Relay Network and FR-TR Bridge](#)
- [C.10 AS/400 System Connection Using Concurrent Host Attachment through an APPN Network](#)
- [C.11 AS/400 System Connection Using an SDLC Leased Line through an SNA Subarea Network](#)
- [C.12 AS/400 System Connection Using Token-Ring through an SNA Subarea Network](#)

C.1 AS/400 System Connection Using a Token-Ring Network

The following example describes an AS/400 system connection to the 5494 through a Token-Ring network.



This example includes sample completed worksheets, a matching parameters diagram, and tables that show the configuration parameters for the following items:

- The 5494
- AS/400 system network attributes
- Line description
- APPC controller description
- Mode description
- Remote workstation controller description
- Display device description
- The PWS.

Refer to [Topic 5, "Preparing the Configuration Worksheets,"](#) for descriptions of the worksheet fields. In the tables of configuration parameters, the values given in the column headed "5494 Configuration Worksheet Field" refer to a field on one of the worksheets.

Only those parameters that are relevant to the connection between the 5494 and the AS/400 system are included. Refer to your AS/400 system documentation for a complete list of configuration parameters.

The values shown for the parameters in this example are not necessarily the only acceptable values. Due to network and other considerations that depend on your environment, the values for your configuration can be different from those presented in this example.

Subtopics:

- [C.1.1 Network Information Worksheet](#)
- [C.1.2 AS/400 Communication Worksheet--Token-Ring](#)
- [C.1.3 Token-Ring Network Matching Parameters](#)
- [C.1.4 5494 Configuration](#)
- [C.1.5 AS/400 System Network Attributes](#)
- [C.1.6 AS/400 System Line Description](#)
- [C.1.7 AS/400 System APPC Controller Description](#)
- [C.1.8 AS/400 System Mode Description](#)
- [C.1.9 AS/400 System Remote Workstation Controller Description](#)
- [C.1.10 AS/400 System Device Description for Displays Attached to the 5494](#)
- [C.1.11 Programmable Workstation Using DOS Client Access/400](#)

C.1.1 Network Information Worksheet

Network Information Worksheet	
5494 location	<u>Building 65, Room 3-H201</u>
	NWS Field Name
A Default network ID	11 <u>NETID</u>
B 5494 logical unit (LU) name	12 <u>TR5494CP</u>
C 5494 control point (CP) name	13 <u>TR5494CP</u>
D Default mode name	14 <u>ORMTWSC</u>
E 5494 connection number	15 40005494E000

F	Logical connection retry parameters		
F1	Retry counter	16	<u>10</u>
F2	Retry interval	16	<u>6</u>
F3	Continuous retry	16	<u>Yes</u>
G	5494 identification		
G1	Serial number	17	<u>12-34567</u>
G2	System password	18	<u>5494002</u>
G3	ID number	19	<u>*</u>
H	Primary AS/400 System	20	<u>1</u>
I	Concurrent host information		
I1	Concurrent host attachment	21	<u>No</u>
I2	Printer timeout	22	_____
J	AS/400 time/date synchronization	23	<u>No</u>

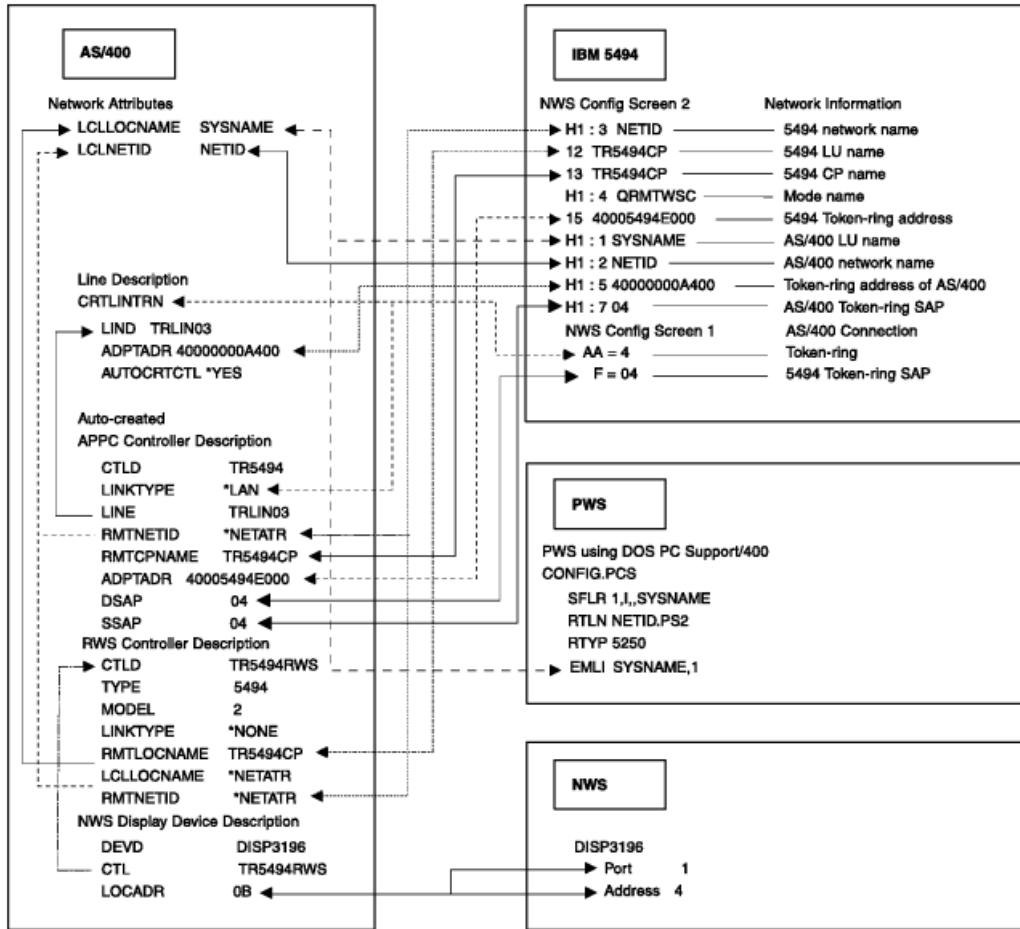
| AS/400 System Information (Required for primary AS/400 system):

	AS/400 System 1 (H1)	AS/400 System 2 (H2)
K	AS/400 LU name	H1:1 <u>SYSNAME</u>
L	AS/400 network ID	H1:2 <u>NETID</u>
M	5494 network ID	H1:3 <u>NETID</u>
N	Mode name	H1:4 <u>QRMTWSC</u>
O	Connection number	H1:5 <u>40000000A400</u>
P	Controller Session Parameters	
P1	Initiation	H2:11 _____
P2	Disconnect Request	H2:11 _____
	AS/400 System 3 (H3)	AS/400 System 4 (H4)
K	AS/400 LU name	H3:1 _____
L	AS/400 network ID	H3:2 _____
M	5494 network ID	H3:3 _____
N	Mode name	H3:4 _____
O	Connection number	H3:5 _____
P	Controller Session Parameters	
P1	Initiation	H4:11 _____
P2	Disconnect Request	H4:11 _____

| Send the completed worksheet to the person who will configure the 5494 to ensure correct operation.

AS/400 Communication Worksheet--Token Ring	
5494 location <u>Building 65, Room 3-H201</u>	
Fill in the blank or circle/underline the appropriate choice:	
What is your Token-Ring speed? (<u>4 Mbps</u> or 16 Mbps)	
NWS Field Name	
A 5494 information: A1 5494 SAP (<u>04</u> - FC) A2 Response timer (T1) (1 - 20) A3 Inactivity timer (Ti) (1 - 99, <u>30</u>) A4 Receiver acknowledgment timer (T2) (1 - 255, <u>30</u>) A5 Retry count (N2) (1 - 99, <u>8</u>)	
Information required for one AS/400 system.	
H1 AS/400 system 1: 1 AS/400 system SAP (<u>04</u> - FC) 2 Maximum out (TW) (<u>2</u> - 8) 3 Maximum in (N3) (1 - <u>4</u>)	
H1:7 <u>04</u> H1:8 <u>2</u> H1:9 <u>1</u>	
H2 AS/400 system 2: 1 AS/400 system SAP (<u>04</u> - FC) 2 Maximum out (TW) (<u>2</u> - 8) 3 Maximum in (N3) (1 - <u>4</u>)	
H2:7 _____ H2:8 _____ H2:9 _____	
H3 AS/400 system 3: 1 AS/400 system SAP (<u>04</u> - FC) 2 Maximum out (TW) (<u>2</u> - 8) 3 Maximum in (N3) (1 - <u>4</u>)	
H3:7 _____ H3:8 _____ H3:9 _____	
H4 AS/400 system 4: 1 AS/400 system SAP (<u>04</u> - FC) 2 Maximum out (TW) (<u>2</u> - 8) 3 Maximum in (N3) (1 - <u>4</u>)	
H4:7 _____ H4:8 _____ H4:9 _____	
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.	

C.1.3 Token-Ring Network Matching Parameters



C.1.4 5494 Configuration

The 5494 configuration values are as follows:

5494 Parameter	5494 Configuration Worksheet Field (1)	NWS Field Name	Value	AS/400 Parameter Keyword
5494 LU name	B	12	TR5494CP	RMTLOCNAME
5494 CP name	C	13	TR5494CP	RMTCPNAME
5494 connection number (Token-ring address of 5494)	E	15	40005494E000	ADPTADR for APPCCTL
5494 token-ring SAP	A1	F	04	DSAP
5494 ID number	G3	19	*	EXCHID
H1 AS/400 system 1				
AS/400 LU name	J	H1:1	SYSNAME	LCLLOCNAME
AS/400 network ID	K	H1:2	NETID	LCLNETID
5494 network ID	L	H1:3	NETID	RMTNETID
Mode name	M	H1:4	QRMTWSC	MODD
AS/400 connection number (Token-ring address of AS/400)	N	H1:5	40000000A400	ADPTADR for TRLIN03

Notes:

1. See "[Network Information Worksheet](#)" in topic 5.3.
2. See "[AS/400 Communication Worksheet--Token-Ring](#)" in topic 5.9.1.

C.1.5 AS/400 System Network Attributes

The AS/400 system network attributes are as follows:

AS/400 Parameter	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Current system name		SYSNAME	
Local network ID	LCLNETID	NETID	K (1)
Local control point name	LCLCPNAME	SYSNAME	
Default local location	LCLLOCNAME	SYSNAME	J (1)

Note:

1. See "[Network Information Worksheet](#)" in topic 5.3.

Type **DSPNETA** to display AS/400 system network attributes.

C.1.6 AS/400 System Line Description

The AS/400 system line description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Line description	LIND	TRLIN03	
Resource names	RSRCNAME	LIN03	
Line speed	LINESPEED	4M	
Local adapter address	ADPTADR	40000000A400	N (1)
Maximum frame size		1033	

Note:

1. See "[Network Information Worksheet](#)" in topic 5.3.

Type **CRTLINTRN** to create AS/400 system line descriptions.

Type **WRKCFGSTS *LIN** to display AS/400 system line descriptions.

Type **WRKHDWPRD** to determine the location of the AS/400 system line or hardware.

C.1.7 AS/400 System APPC Controller Description

The AS/400 system APPC controller description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Controller description	CTLD	TR5494	
Link type	LINKTYPE	*LAN	
Switched line list	SWLNLST	TRLIN03	
Remote network identifier	RMTNETID	*NETATR	L (1)
Remote control point	RMTCPNAME	TR5494CP	C (1)
LAN remote adapter address	ADPTADR	40005494E000	E (1)
Exchange identifier	EXCHID	07300000	G3 (2)
APPN capable	APPN	*YES	
APPN node type	NODETYPE	*LENNODE	
LAN DSAP	DSAP	04	A1 (3)
LAN SSAP	SSAP	04	H1:1 (3)

Notes:

1. See "[Network Information Worksheet](#)" in topic 5.3.
2. With field G3 set to *, the format for the EXCHID parameter is 07300000, where X'073' is the block number assigned to the 5494 and 00000 is used for token ring.
3. See "[AS/400 Communication Worksheet--Token-Ring](#)" in topic 5.9.1.

Type **CRTCTLAPPC** to create AS/400 system APPC controller descriptions.

Type **WRKCFGSTS *CTL** to display AS/400 system APPC controller descriptions.

C.1.8 AS/400 System Mode Description

The AS/400 system mode description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Mode description	MODD	QRMTWSC (1)	M (2)

Notes:

1. The mode name QRMTWSC is IBM-supplied in Version 2 Release 2.
2. See "[Network Information Worksheet](#)" in topic [5.3](#).

Type **DSPMODD** to display the mode name on your AS/400 system.

C.1.9 AS/400 System Remote Workstation Controller Description

The AS/400 system remote workstation controller description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Controller description	CTLD	TR5494RWS	
Controller type	TYPE	5494	
Controller model	MODEL	2 (2)	
Link type	LINKTYPE	*NONE	
Remote location	RMTLOCNAME	TR5494CP	B (1)
Local location	LCLLOCNAME	*NETATR	J (1)
Remote network identifier	RMTNETID	*NETATR	L (1)

Notes:

- | |
|--|
| 1. See " Network Information Worksheet " in topic 5.3. |
| 2. Select 2 if your 5494 contains a 5494 LAN adapter. Otherwise, select 1. |
-

Type **CRTCTLRWS** to create AS/400 system remote workstation controller descriptions.

Type **WRKCFGSTS *CTL** to display AS/400 system remote workstation controller descriptions.

Note: In this example, the 5494 remote location name and the 5494 remote control point are the same. If the names had been chosen such that they were different, an entry in the Remote Configuration List to correlate the remote location name and the remote control point would be necessary. These names must correlate in order to associate the APPC controller with an RWS controller.

C.1.10 AS/400 System Device Description for Displays Attached to the 5494

The AS/400 system device descriptions for displays attached to the 5494 are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value
Device description	DEVD	DISP3196
Device class	DEVCLS	*RMT
Device type	TYPE	3196
Local location address	LOCADR	0B(1)
Attached controller	CTL	TR5494RWS
Note:		
(1) To determine the local location address, see Table 9 in topic 3.8.1 .		

Type **CRTDEVDSP** to create AS/400 system device descriptions for displays attached to the 5494.

Type **WRKCFGSTS *DEV** to display AS/400 system device descriptions for displays attached to the 5494.

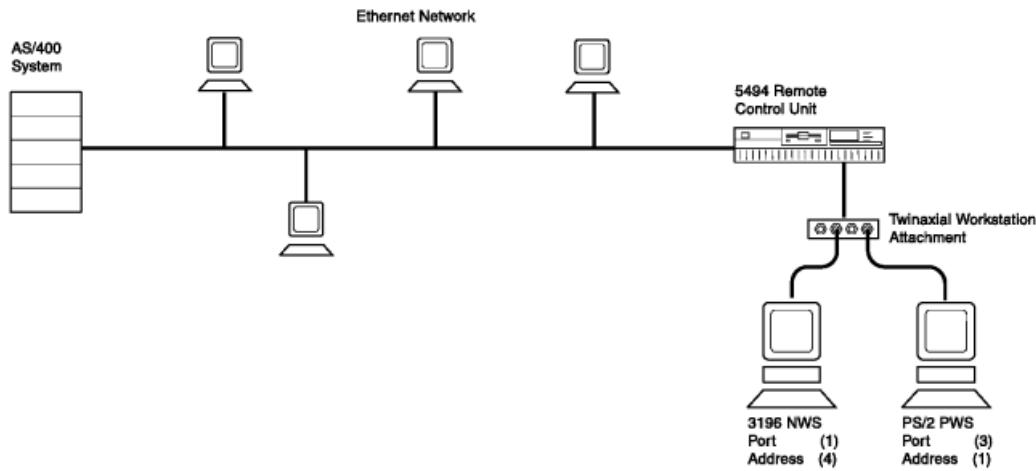
C.1.11 Programmable Workstation Using DOS Client Access/400

The PS/2 computer configuration file contents are as follows:

File Contents	AS/400 Parameter Keyword
SFLR 1,I,,SYSNAME	LCLLOCNAME
RTLN NETID.PS2	
RTYP ITRN	
TRLI SYSNAME,1	LCLLOCNAME

C.2 AS/400 System Connection Using an Ethernet Network

The following example describes an AS/400 system connection to the 5494 through an Ethernet network.



This example includes sample completed worksheets, a matching parameters diagram, and tables that show the configuration parameters for the following items:

- The 5494
- AS/400 system network attributes
- Line description
- APPC controller description
- Mode description
- Remote workstation controller description
- Display device description
- The PWS.

Refer to [Topic 5, "Preparing the Configuration Worksheets,"](#) for descriptions of the worksheet fields. In the tables of configuration parameters, the values given in the column headed "5494 Configuration Worksheet Field" refer to a field on one of the worksheets.

Only those parameters that are relevant to the connection between the 5494 and the AS/400 system are included. Refer to your AS/400 system documentation for a complete list of configuration parameters.

The values shown for the parameters in this example are not necessarily the only acceptable values. Due to network and other considerations that depend on your environment, the values for your configuration can be different from those presented in this example.

Subtopics:

- [C.2.1 Network Information Worksheet](#)
- [C.2.2 AS/400 Communication Worksheet--Ethernet](#)
- [C.2.3 Ethernet Network Matching Parameters](#)
- [C.2.4 5494 Configuration](#)
- [C.2.5 AS/400 System Network Attributes](#)
- [C.2.6 AS/400 System Line Description](#)
- [C.2.7 AS/400 System APPC Controller Description](#)
- [C.2.8 AS/400 System Mode Description](#)
- [C.2.9 AS/400 System Remote Workstation Controller Description](#)
- [C.2.10 AS/400 System Device Description for Displays Attached to the 5494](#)
- [C.2.11 Programmable Workstation Using DOS PC Support/400](#)

C.2.1 Network Information Worksheet

Network Information Worksheet	
5494 location <u>Building 65, Room 3-H201</u>	
	NWS Field Name
A Default network ID	11 <u>NETID</u>
B 5494 logical unit (LU) name	12 <u>EN5494CP</u>
C 5494 control point (CP) name	13 <u>EN5494CP</u>
D Default mode name	14 <u>ORMTWSC</u>
E 5494 connection number	15 02005494E000
F Logical connection retry parameters	
F1 Retry counter	16 <u>10</u>
F2 Retry interval	16 <u>6</u>
F3 Continuous retry	16 <u>Yes</u>
G 5494 identification	
G1 Serial number	17 <u>12-34567</u>
G2 System password	18 <u>5494002</u>
G3 ID number	19 <u>*</u>
H Primary AS/400 System	20 <u>1</u>
I Concurrent host information	
I1 Concurrent host attachment	21 <u>No</u>
I2 Printer timeout	22 _____

| AS/400 System Information (Required for primary AS/400 system): |

	AS/400 System 1 (H1)	AS/400 System 2 (H2)
K AS/400 LU name	H1:1 <u>SYSNAME</u>	H2:1 _____
L AS/400 network ID	H1:2 <u>NETID</u>	H2:2 _____
M 5494 network ID	H1:3 <u>NETID</u>	H2:3 _____
N Mode name	H1:4 <u>QRMTWSC</u>	H2:4 _____
O Connection number	H1:5 <u>40000000A400</u>	H2:5 _____
P Controller Session Parameters		
P1 Initiation	H1:11 <u>No</u>	H2:11 _____
P2 Disconnect Request	H1:11 <u>Accept</u>	H2:11 _____
	AS/400 System 3 (H3)	AS/400 System 4 (H4)
K AS/400 LU name	H3:1 _____	H4:1 _____
L AS/400 network ID	H3:2 _____	H4:2 _____
M 5494 network ID	H3:3 _____	H4:3 _____
N Mode name	H3:4 _____	H4:4 _____
O Connection number	H3:5 _____	H4:5 _____
P Controller Session Parameters		
P1 Initiation	H3:11 _____	H4:11 _____
P2 Disconnect Request	H3:11 _____	H4:11 _____

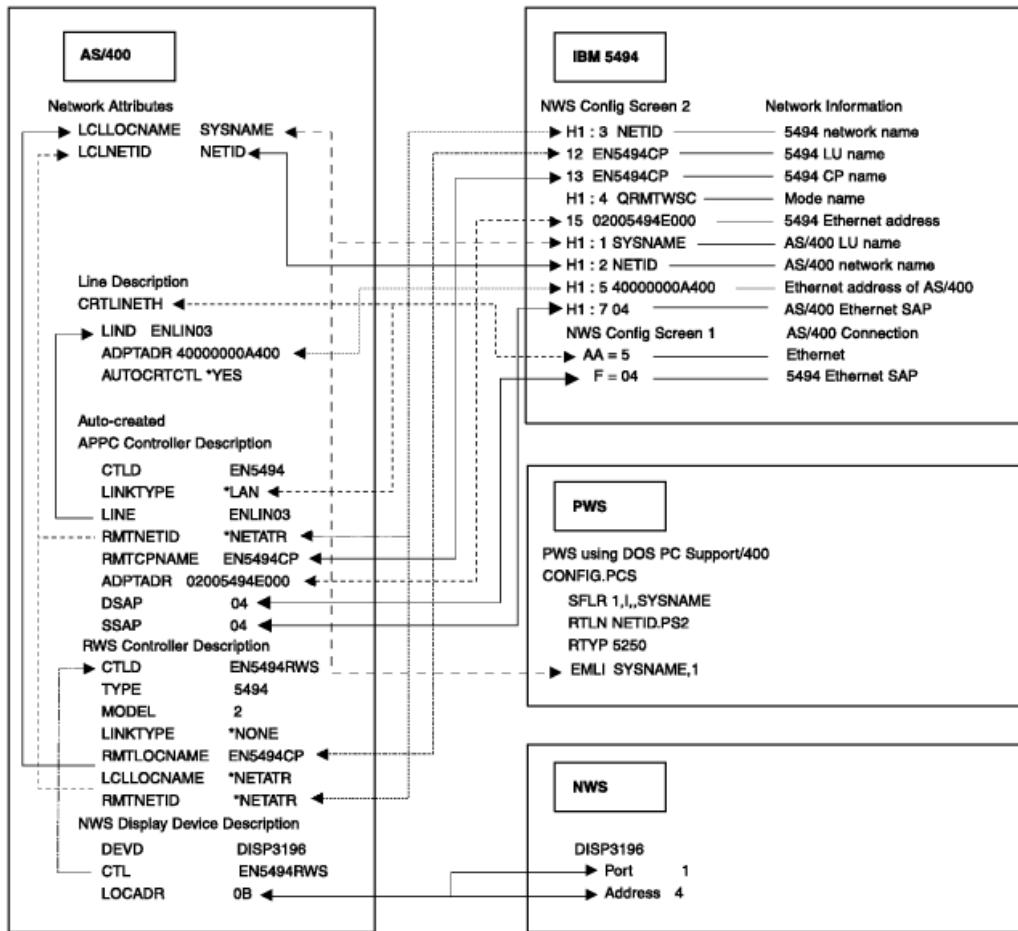
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation.

C.2.2 AS/400 Communication Worksheet--Ethernet

AS/400 Communication Worksheet--Ethernet		
5494 location <u>Building 65, Room 3-H201</u>		
Fill in the blank or circle/underline the appropriate choice:		
What is your Ethernet media type? (<u>10BASE-T</u> , 10BASE2, 10BASE5)		
What is your Ethernet frame format? (<u>IEEE 802.3</u> or DIX Version 2.0)		
		NWS Field Name
A 5494 information:		
A1	5494 SAP (04 - FC)	F <u>04</u>
A2	Response timer (T1) (1 - 20)	G <u>1</u>
A3	Inactivity timer (Ti) (1 - 99, 30)	H <u>30</u>
A4	Receiver acknowledgment timer (T2) (1 - 255, 30)	I <u>30</u>

A5 Retry count (N2) (1 - 99, 8)	J	<u>08</u>
Information for the primary AS/400 system is required.		
H1 AS/400 system 1:		
1 AS/400 system SAP (04 - FC)	H1:7	<u>04</u>
2 Maximum out (TW) (2 - 8)	H1:8	<u>2</u>
3 Maximum in (N3) (1 - 4)	H1:9	<u>1</u>
H2 AS/400 system 2:		
1 AS/400 system SAP (04 - FC)	H2:7	_____
2 Maximum out (TW) (2 - 8)	H2:8	_____
3 Maximum in (N3) (1 - 4)	H2:9	_____
H3 AS/400 system 3:		
1 AS/400 system SAP (04 - FC)	H3:7	_____
2 Maximum out (TW) (2 - 8)	H3:8	_____
3 Maximum in (N3) (1 - 4)	H3:9	_____
H4 AS/400 system 4:		
1 AS/400 system SAP (04 - FC)	H4:7	_____
2 Maximum out (TW) (2 - 8)	H4:8	_____
3 Maximum in (N3) (1 - 4)	H4:9	_____
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.		

C.2.3 Ethernet Network Matching Parameters



C.2.4 5494 Configuration

The 5494 configuration values are as follows:

5494 Parameter	5494 Configuration Worksheet Field (1)	NWS Field Name	Value	AS/400 Parameter Keyword
5494 LU name	B	12	EN5494CP	RMTLOCNAME
5494 CP name	C	13	EN5494CP	RMTCPNAME
5494 connection number (Ethernet address of 5494)	E	15	02005494E000	ADPTADR for APPCCTL
5494 Ethernet SAP	A1	F	04	DSAP
5494 ID number	G3	19	*	EXCHID
H1 AS/400 system 1 AS/400 LU name AS/400 network ID 5494 network ID Mode name AS/400 connection number (Ethernet address of AS/400) AS/400 Ethernet SAP	J K L M N H1:1	H1:1 H1:2 H1:3 H1:4 H1:5 H1:7	SYSNAME NETID NETID QRMTWSC 40000000A400 04	LCLLOCNAME LCLNETID RMTNETID MODD ADPTADR for ENLIN03 SSAP
Notes:				
1. See " Network Information Worksheet " in topic 5.3.				
2. See " AS/400 Communication Worksheet--Ethernet " in topic 5.9.2.				

C.2.5 AS/400 System Network Attributes

The AS/400 system network attributes are as follows:

AS/400 Parameter	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Current system name		SYSNAME	
Local network ID	LCLNETID	NETID	K (1)
Local control point name	LCLCPNAME	SYSNAME	
Default local location	LCLLOCNAME	SYSNAME	J (1)

Note:

1. See "[Network Information Worksheet](#)" in topic 5.3.

Type **DSPNETA** to display AS/400 system network attributes.

C.2.6 AS/400 System Line Description

The AS/400 system line description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Line description	LIND	ENLIN03	
Resource name	RSRCNAME	LIN03	
Local adapter address	ADPTADR	40000000A400	N (1)
Ethernet standard	ETHSTD	*ALL	
Link speed	LINKSPEED	10M	

Note:

1. See "[Network Information Worksheet](#)" in topic 5.3.

Type **CRTLINETH** to create AS/400 system line descriptions.

Type **WRKCFGSTS *LIN** to display AS/400 system line descriptions.

Type **WRKHWDWPRD** to determine the location of the AS/400 system line or hardware.

C.2.7 AS/400 System APPC Controller Description

The AS/400 system APPC controller description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Controller description	CTLD	EN5494	
Link type	LINKTYPE	*LAN	
Switched line list	SWLINLST	ENLIN03	
Remote network identifier	RMTNETID	*NETATTR	L (1)
Remote control point	RMTCPNAME	EN5494CP	C (1)
LAN remote adapter address	ADPTADR	02005494E000	E (1)
Exchange identifier	EXCHID	07300000	G3 (2)
APPN capable	APPN	*YES	
APPN node type	NODETYPE	*LENNODE	
LAN DSAP	DSAP	04	A1 (3)
LAN SSAP	SSAP	04	H1:1 (3)

Notes:

1. See "[Network Information Worksheet](#)" in topic [5.3](#).
2. With field G3 set to *, the format for the EXCHID parameter is 07300000, where X'073' is the block number assigned to the 5494 and 00000 is used for Ethernet.
3. See "[AS/400 Communication Worksheet--Ethernet](#)" in topic [5.9.2](#).

Type **CRTCTLAPPC** to create AS/400 system APPC controller descriptions.

Type **WRKCFGSTS *CTL** to display AS/400 system APPC controller descriptions.

C.2.8 AS/400 System Mode Description

The AS/400 system mode description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Mode description	MODD	QRMTWSC (1)	M (2)

Notes:

1. The mode name QRMTWSC is IBM-supplied in Version 2 Release 2.
2. See "[Network Information Worksheet](#)" in topic [5.3](#).

Type **DSPMODD** to display the mode name on your AS/400 system.

C.2.9 AS/400 System Remote Workstation Controller Description

The AS/400 system remote workstation controller description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Controller description	CTLD	EN5494RWS	
Controller type	TYPE	5494	
Controller model	MODEL	2 (2)	
Link type	LINKTYPE	*NONE	
Remote location	RMTLOCNAME	EN5494CP	B (1)
Local location	LCLLOCNAME	*NETATR	J (1)
Remote network identifier	RMTNETID	*NETATR	L (1)

Notes:

1. See "[Network Information Worksheet](#)" in topic [5.3](#).
2. Select 2 if your 5494 contains a 5494 LAN adapter. Otherwise, select 1.

Type **CRTCTLRWS** to create AS/400 system remote workstation controller descriptions.

Type **WRKCFGSTS *CTL** to display AS/400 system remote workstation controller descriptions.

Note: In this example, the 5494 remote location name and the 5494 remote control point are the same. If the names had been chosen such that they were different, an entry in the Remote Configuration List to correlate the remote location name and the remote control point would be necessary. These names must correlate in order to associate the APPC controller with an RWS controller.

C.2.10 AS/400 System Device Description for Displays Attached to the 5494

The AS/400 system device descriptions for displays attached to the 5494 are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value
Device description	DEVD	DISP3196
Device class	DEVCLS	*RMT
Device type	TYPE	3196
Local location address	LOCADR	OB(1)
Attached controller	CTL	EN5494RWS

Note:

(1) To determine the local location address, see [Table 9 in topic 3.8.1](#).

Type **CRTDEVDSP** to create AS/400 system device descriptions for displays attached to the 5494.

Type **WRKCFGSTS *DEV** to display AS/400 system device descriptions for displays attached to the 5494.

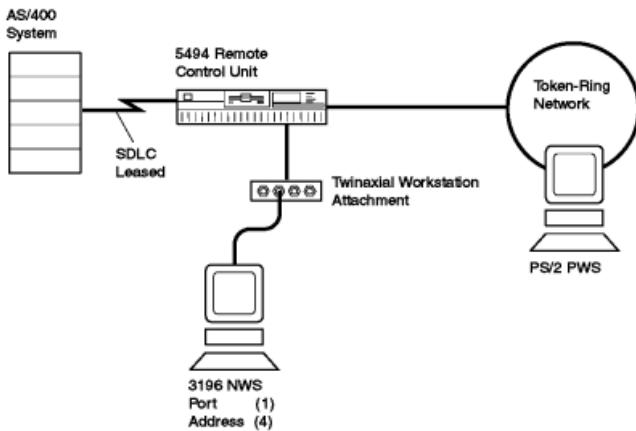
C.2.11 Programmable Workstation Using DOS PC Support/400

The PS/2 computer configuration file contents are as follows:

File Contents	AS/400 Parameter Keyword
SFLR 1,I,,SYSNAME	LCLLOCNAME
RTLN NETID.PS2	
RTYP 5250	

C.3 AS/400 System Connection Using an SDLC Leased Line with Token-Ring Gateway

The following example describes an AS/400 system connection to the 5494 using an SDLC leased line.



This example includes sample completed worksheets, a matching parameters diagram, and tables that show the configuration parameters for the following items:

- The 5494
- AS/400 system network attributes
- Line description
- APPC controller description
- Mode description
- Remote workstation controller description
- Display device description
- The PWS.

Refer to [Topic 5, "Preparing the Configuration Worksheets,"](#) for descriptions of the worksheet fields. In the tables of configuration parameters, the values given in the column headed "5494 Configuration Worksheet Field" refer to a field on one of the worksheets.

Only those parameters that are relevant to the connection between the 5494 and the AS/400 system are included. Refer to your AS/400 system documentation for a complete list of configuration parameters.

The values shown for the parameters in this example are not necessarily the only acceptable values. Due to network and other considerations that depend on your environment, the values for your configuration can be different from those presented in this example.

Subtopics:

- [C.3.1 Network Information Worksheet](#)
- [C.3.2 AS/400 Communication Worksheet--SDLC](#)
- [C.3.3 Token-Ring Gateway Worksheet](#)
- [C.3.4 SDLC Leased Line with Token-Ring Gateway Matching Parameters](#)
- [C.3.5 5494 Configuration](#)
- [C.3.6 AS/400 System Network Attributes](#)
- [C.3.7 AS/400 System Line Description](#)
- [C.3.8 AS/400 System APPC Controller Description](#)
- [C.3.9 AS/400 System Mode Description](#)
- [C.3.10 AS/400 System Remote Workstation Controller Description](#)
- [C.3.11 AS/400 System Device Description for Displays Attached to the 5494](#)
- [C.3.12 Programmable Workstation Using DOS PC Support/400](#)

C.3.1 Network Information Worksheet

Network Information Worksheet	
5494 location Atlanta	
	NWS Field Name
A Default network ID	11 <u>NETID</u>
B 5494 logical unit (LU) name	12 <u>LU5494</u>
C 5494 control point (CP) name	13 <u>LU5494</u>
D Default mode name	14 <u>QRMTWSC</u>
E 5494 connection number	15 _____
F Logical connection retry parameters	
F1 Retry counter	16 <u>10</u>
F2 Retry interval	16 <u>6</u>
F3 Continuous retry	16 <u>Yes</u>
G 5494 identification	
G1 Serial number	17 <u>AB-12345</u>
G2 System password	18 <u>XYZ123</u>
G3 ID number	19 <u>*</u>
H Primary AS/400 System	20 <u>1</u>
I Concurrent host information	
I1 Concurrent host attachment	21 <u>No</u>
I2 Printer timeout	22 _____
J AS/400 time/date synchronization	23 <u>No</u>

AS/400 System Information (Required for primary AS/400 system):

	AS/400 System 1 (H1)	AS/400 System 2 (H2)
K AS/400 LU name	H1:1 <u>SYSNAME</u>	H2:1 _____
L AS/400 network ID	H1:2 <u>NETID</u>	H2:2 _____
M 5494 network ID	H1:3 <u>NETID</u>	H2:3 _____
N Mode name	H1:4 <u>ORMTWSC</u>	H2:4 _____
O Connection number	H1:5 _____	H2:5 _____
P Controller Session Parameters		
P1 Initiation	H1:11 <u>No</u>	H2:11 _____
P2 Disconnect Request	H1:11 <u>Accept</u>	H2:11 _____
	AS/400 System 3 (H3)	AS/400 System 4 (H4)
K AS/400 LU name	H3:1 _____	H4:1 _____
L AS/400 network ID	H3:2 _____	H4:2 _____
M 5494 network ID	H3:3 _____	H4:3 _____
N Mode name	H3:4 _____	H4:4 _____
O Connection number	H3:5 _____	H4:5 _____
P Controller Session Parameters		
P1 Initiation	H3:11 _____	H4:11 _____
P2 Disconnect Request	H3:11 _____	H4:11 _____
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation.		

C.3.2 AS/400 Communication Worksheet--SDLC

AS/400 Communication Worksheet--SDLC	
5494 location	<u>Atlanta</u>
Fill in the blank or circle/underline the appropriate choice:	
A 5494 SDLC station address (01 - FE)	<u>01</u>
B Line and modem or DCE configuration information:	
B1 Line type (<u>leased</u> , switched, or switched/V.25 bis)	
B2 Line facility (<u>half-duplex</u> or <u>full-duplex</u>)	
B3 Connection type (<u>multipoint</u> or <u>point-to-point</u>)	
B4 Data encoding (<u>NRZI</u> or <u>NRZ</u>)	
B5 Connection method (<u>DTR</u> or CDSTL)	
B6 Send leading pad (<u>No</u> or Yes)	
B7 Local loopback support (<u>No</u> or Yes)	
c V.25 bis auto-dial connection time-out in seconds (1 - 255, 60)	_____

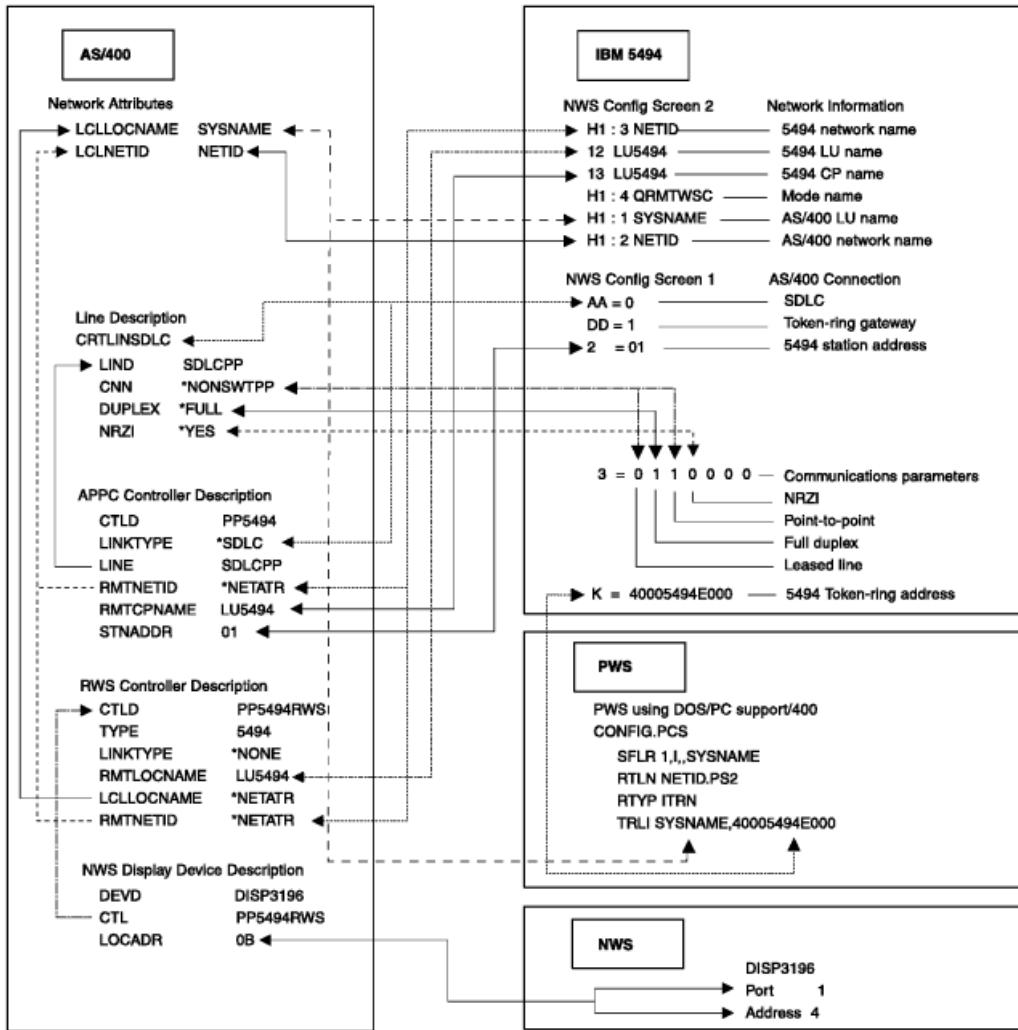
- D** Token-Ring Gateway support:
- D1** Are you using token-ring to attach workstations? (No or Yes)
- D2** What is your token-ring speed? (4 Mbps or 16 Mbps)
- E** Ethernet Gateway support:
- E1** Are you using Ethernet to attach workstations? (No or Yes)
- E2** What is your Ethernet media type? (10BASE-T, 10BASE2, or 10BASE5)
- E3** What is your Ethernet frame format? (IEEE 802.3 or DIX Version 2.0)

Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.

C.3.3 Token-Ring Gateway Worksheet

Token-Ring Gateway Worksheet	
5494 location	Atlanta
Fill in the blank or circle/underline the appropriate choice.	
A 5494 Token-Ring address (or permanent address)	K <u>40005494E000</u>
B 5494 SAP (04 - FC)	L <u>04</u>
C Response timer (T1) (1 - 20)	M <u>1</u>
D Inactivity timer (Ti) (1 - 99, 30)	N <u>30</u>
E Receiver acknowledgment timer (T2) (1 - 255, 30)	O <u>30</u>
F Retry count (N2) (1 - 99, 8)	Q <u>8</u>
G Maximum out (TW) (2 - 8)	R <u>2</u>
H Maximum in (N3) (1 - 4)	S <u>1</u>
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.	

C.3.4 SDLC Leased Line with Token-Ring Gateway Matching Parameters



C.3.5 5494 Configuration

The 5494 configuration values are as follows:

5494 Parameter	5494 Configuration Worksheet Field	NWS Field Name	Value	AS/400 Parameter Keyword
Communication mode	title of worksheet	AA	SDLC (0)	CRTLINSDLC
LAN Gateway support	D1 (1)	DD	Token-ring (1)	N/A
Station address	A (1)	2	01	STNADR
Line type	B1 (1)	3	leased line (0)	CNN
Line facility	B2 (1)	3	full-duplex (1)	DUPLEX
Connection type	B3 (1)	3	point-to-point (1)	CNN
Data encoding	B4 (1)	3	NRZI (0)	NRZI

5494 LU name	B (2)	12	LU5494	RMTLOCNAME
5494 CP name	C (2)	13	LU5494	RMTCPNAME
5494 ID number	G3 (2)	19	*	EXCHID
H1 AS/400 system 1				
AS/400 LU name	J (2)	H1:1	SYSNAME	LCLLOCNAME
AS/400 network ID	K (2)	H1:2	NETID	LCLNETID
5494 network ID	L (2)	H1:3	NETID	RMTNETID
Mode name	M (2)	H1:4	QRMTWSC	MODD

Notes:

1. See "[AS/400 Communication Worksheet--SDLC,](#)" in topic [5.4](#).
2. See "[Network Information Worksheet](#)" in topic [5.3](#).

C.3.6 AS/400 System Network Attributes

The AS/400 system network attributes are as follows:

AS/400 Parameter	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Current system name		SYSNAME	
Local network ID	LCLNETID	NETID	K (1)
Local control point name	LCLCPNAME	SYSNAME	
Default local location	LCLLOCNAME	SYSNAME	J (1)

Note:

1. See "[Network Information Worksheet](#)" in topic [5.3](#).

Type **DSPNETA** to display AS/400 system network attributes.

C.3.7 AS/400 System Line Description

The AS/400 system line description parameters are as follows:

AS/400 Field	Parameter Keyword	Value	Configuration Worksheet Field
Line description	LIND	SDLCPP	
Category of line		*SDLC	
Resource names	RSRCNAME	LIN041	
Physical interface	INTERFACE	*RS232V24 (2)	
Connection type	CNN	*NONSWTPP	B1 (1) B3 (1)
Exchange identifier	EXCHID	*SYSGEN	
NRZI data encoding	NRZI	*YES	B4 (1)
Maximum controllers	MAXCTL	1	B3 (1)
Maximum frame size	MAXFRAME	1033	
Duplex	DUPLEX	*FULL	B2 (1)
Notes:			
1. See " AS/400 Communication Worksheet--SDLC ," in topic 5.4 .			
2. If you are using V.35 physical interface, The Value is *V35.			

Type **CRTLINSDLC** to create AS/400 system line descriptions.

Type **WRKCFGSTS *LIN** to display AS/400 system line descriptions.

Type **WRKHDWPRD** to determine the location of the AS/400 system line or hardware.

C.3.8 AS/400 System APPC Controller Description

The AS/400 system communication controller description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Controller description	CTLD	PP5494	
Link type	LINKTYPE	*SDLC	
Switched connection	SWITCHED	*NO	
Attached nonswitched Line	LINE	SDLCPP	
Maximum frame size	MAXFRAME	1033	
Remote network identifier	RMTNETID	*NETATR	L (1)
Remote control point	RMTCPNAME	LU5494	C (1)

Data link role	ROLE	*NEG	
Station address	STNADR	01	A (2)
Exchange identifier	EXCHID	07300001	A (2), G3 (3)
APPN-capable	APPN	*YES	
APPN node type	NODETYPE	*LENNODE	

Notes:

1. See "[Network Information Worksheet](#)" in topic [5.3](#).
2. See "[AS/400 Communication Worksheet--SDLC](#)," in topic [5.4](#).
3. With field G3 set to *, the format for the EXCHID parameter is 073000xx, where X'073' is the block number assigned to the 5494 and xx is the station address from the "[AS/400 Communication Worksheet--SDLC](#)," in topic [5.4](#).

Type **CRTCTLAPPC** to create AS/400 system APPC controller descriptions.

Type **WRKCFGSTS *CTL** to display AS/400 system APPC controller descriptions.

C.3.9 AS/400 System Mode Description

The AS/400 system mode description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Mode description	MODD	QRMTWSC (1)	M (2)

Notes:

1. The mode name QRMTWSC is IBM-supplied in Version 2 Release 2.
2. See "[Network Information Worksheet](#)" in topic [5.3](#).

Type **DSPMODD** to display the mode name on your AS/400 system.

C.3.10 AS/400 System Remote Workstation Controller Description

The AS/400 system remote workstation controller description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Controller description	CTLD	PP5494RWS	
Controller type	TYPE	5494	
Controller model	MODEL	2 (2)	
Link type	LINKTYPE	*NONE	
Remote location	RMTLOCNAME	LU5494	B (1)
Local location	LCLLOCNAME	*NETATR	J (1)
Remote network identifier	RMTNETID	*NETATR	L (1)

Notes:

1. See "[Network Information Worksheet](#)" in topic [5.3](#).
2. Select 2 if your 5494 contains a 5494 LAN adapter. Otherwise, select 1.

Type **CRTCTRLRWS** to create AS/400 system remote workstation controller descriptions.

Type **WRKCFGSTS *CTL** to display AS/400 system remote workstation controller descriptions.

Note: In this example, the **5494 remote location name** and the **5494 remote control point** are the same. If the names had been chosen such that they were different, an entry in the Remote Configuration List to correlate the remote location name and the remote control point would be necessary. These names must correlate in order to associate the APPC controller with an RWS controller.

C.3.11 AS/400 System Device Description for Displays Attached to the 5494

The AS/400 system device descriptions for displays attached to the 5494 are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value
Device description	DEVD	DISP3196
Device class	DEVCLS	*RMT
Device type	TYPE	3196
Local location address	LOCADR	0B(1)
Attached controller	CTL	PP5494RWS

Note:

(1) To determine the local location address, see [Table 9 in topic 3.8.1](#).

Type **CRTDEVDSP** to create AS/400 system device descriptions for displays attached to the 5494.

Type **WRKCFGSTS *DEV** to display AS/400 system device descriptions for displays attached to the 5494.

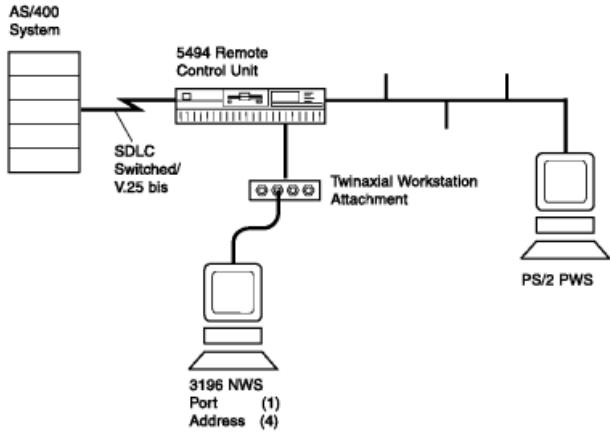
C.3.12 Programmable Workstation Using DOS PC Support/400

The PS/2 computer configuration file contents are as follows:

File Contents	AS/400 Parameter Keyword
SFLR 1,I,,SYSNAME	LCLLOCNAME
RTLN NETID.PS2	
RTYP ITRN	
TRLI SYSNAME, 40005494E000 (1)	LCLLOCNAME
Note:	
1. The destination Token-Ring address in the PS/2 computer configuration is the 5494 Token-Ring address. See "Token-Ring Gateway Worksheet" in topic C.3.3 .	

C.4 AS/400 System Connection Using an SDLC Switched/V.25 bis Autodial Line with Ethernet Gateway

The following example describes an AS/400 system connection to the 5494 using an SDLC switched/V.25 bis line.



This example includes sample completed worksheets, a matching parameters diagram, and tables that show the configuration parameters for the following items:

- The 5494
- AS/400 system network attributes
- Line description
- APPC controller description
- Mode description
- Remote workstation controller description
- Display device description
- The PWS.

Refer to [Topic 5, "Preparing the Configuration Worksheets,"](#) for descriptions of the worksheet fields. In the tables of configuration parameters, the values given in the column headed "5494 Configuration Worksheet Field" refer to a field on one of the worksheets.

Only those parameters that are relevant to the connection between the 5494 and the AS/400 system are included. Refer to your AS/400 system documentation for a complete list of configuration parameters.

The values shown for the parameters in this example are not necessarily the only acceptable values. Due to network and other considerations that depend on your environment, the values for your configuration can be different from those presented in this example.

Subtopics:

- [C.4.1 Network Information Worksheet](#)
- [C.4.2 AS/400 Communication Worksheet--SDLC](#)
- [C.4.3 Ethernet Gateway Worksheet](#)
- [C.4.4 SDLC Switched/V.25 bis Autodial Line with Ethernet Gateway Matching Parameters](#)
- [C.4.5 5494 Configuration](#)
- [C.4.6 AS/400 System Network Attributes](#)
- [C.4.7 AS/400 System Line Description](#)
- [C.4.8 AS/400 System APPC Controller Description](#)
- [C.4.9 AS/400 System Mode Description](#)
- [C.4.10 AS/400 System Remote Workstation Controller Description](#)
- [C.4.11 AS/400 System Device Description for Displays Attached to the 5494](#)
- [C.4.12 Programmable Workstation Using DOS PC Support/400](#)

C.4.1 Network Information Worksheet

Network Information Worksheet		
5494 location <u>Atlanta</u>		
	NWS Field Name	
A Default network ID	11 <u>NETID</u>	
B 5494 logical unit (LU) name	12 <u>SDLCCP</u>	
C 5494 control point (CP) name	13 <u>SDLCCP</u>	
D Default mode name	14 <u>QRMTWSC</u>	
E 5494 connection number	15 555-1234	
F Logical connection retry parameters		
F1 Retry counter	16 <u>10</u>	
F2 Retry interval	16 <u>6</u>	
F3 Continuous retry	16 <u>No</u>	
G 5494 identification		
G1 Serial number	17 <u>47-X1795</u>	
G2 System password	18 <u>TOB27</u>	
G3 ID number	19 <u>*</u>	
H Primary AS/400 System	20 <u>1</u>	
I Concurrent host information		
I1 Concurrent host attachment	21 <u>No</u>	
I2 Printer timeout	22 _____	
J AS/400 time/date synchronization	23 <u>No</u>	
AS/400 System Information (Required for primary AS/400 system):		
	AS/400 System 1 (H1)	AS/400 System 2 (H2)
K AS/400 LU name	H1:1 <u>SYSNAME</u>	H2:1 _____
L AS/400 network ID	H1:2 <u>NETID</u>	H2:2 _____
M 5494 network ID	H1:3 <u>NETID</u>	H2:3 _____
N Mode name	H1:4 <u>QRMTWSC</u>	H2:4 _____
O Connection number	H1:5 <u>555-4357</u>	H2:5 _____
P Controller Session Parameters		
P1 Initiation	H1:11 <u>No</u>	H2:11 _____
P2 Disconnect Request	H1:11 <u>Accept</u>	H2:11 _____
	AS/400 System 3 (H3)	AS/400 System 4 (H4)
K AS/400 LU name	H3:1 _____	H4:1 _____

L	AS/400 network ID	H3:2 _____	H4:2 _____
M	5494 network ID	H3:3 _____	H4:3 _____
N	Mode name	H3:4 _____	H4:4 _____
O	Connection number	H3:5 _____	H4:5 _____
P	Controller Session Parameters		
P1	Initiation	H3:11 _____	H4:11 _____
P2	Disconnect Request	H3:11 _____	H4:11 _____

Send the completed worksheet to the person who will configure the 5494 to ensure correct operation.

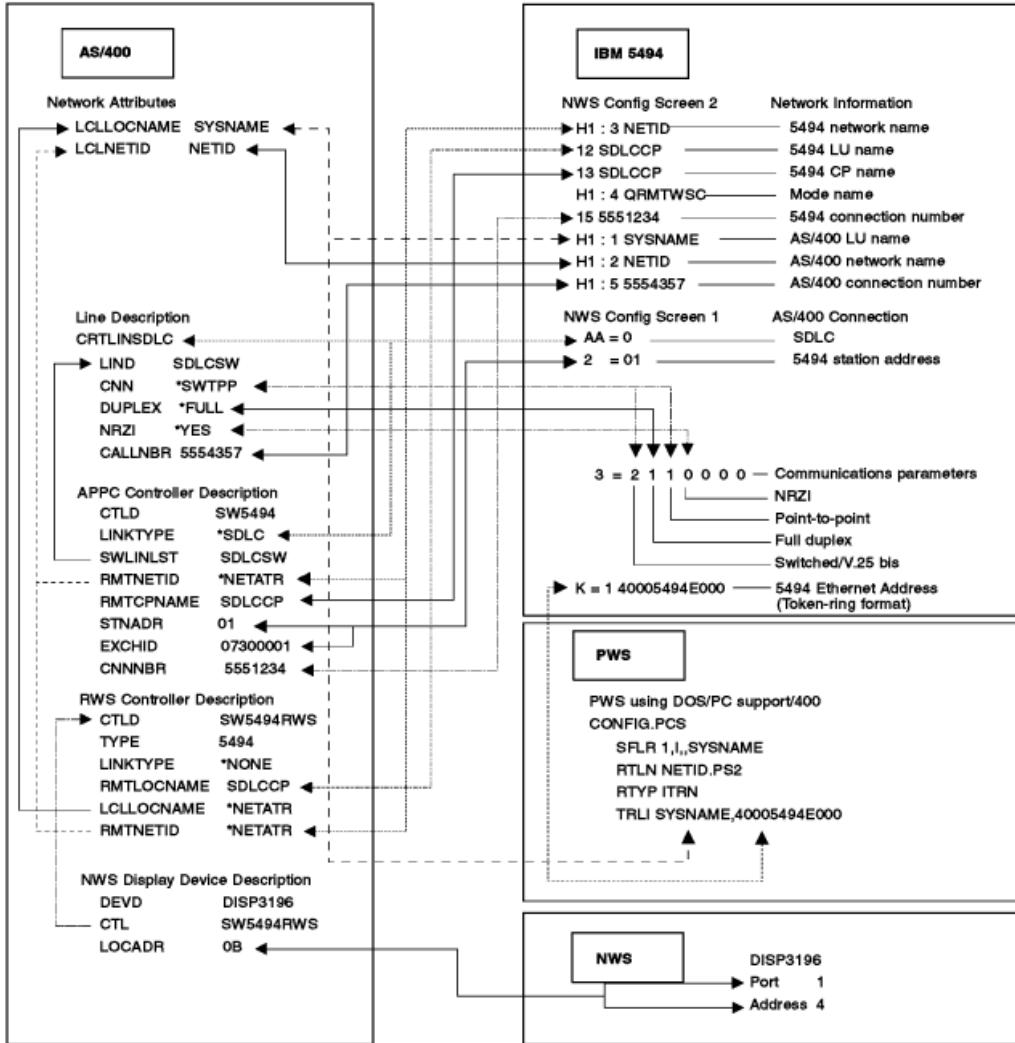
C.4.2 AS/400 Communication Worksheet--SDLC

AS/400 Communication Worksheet--SDLC		
5494 location	<u>Atlanta</u>	
Fill in the blank or circle/underline the appropriate choice:		
A	5494 SDLC station address (01 - FE)	<u>01</u>
B	Line and modem or DCE configuration information:	
B1	Line type (<u>leased</u> , switched, or <u>switched/V.25 bis</u>)	
B2	Line facility (<u>half-duplex</u> or <u>full-duplex</u>)	
B3	Connection type (<u>multipoint</u> or <u>point-to-point</u>)	
B4	Data encoding (<u>NRZI</u> or NRZ)	
B5	Connection method (<u>DTR</u> or CDSTL)	
B6	Send leading pad (<u>No</u> or Yes)	
B7	Local loopback support (<u>No</u> or Yes)	
C	V.25 bis auto-dial connection time-out in seconds (1 - 255,	<u>60</u>
D	Token-Ring Gateway support:	
D1	Are you using token-ring to attach workstations? (<u>No</u> or Yes)	
D2	What is your token-ring speed? (4 Mbps or 16 Mbps)	
E	Ethernet Gateway support:	
E1	Are you using Ethernet to attach workstations? (No or <u>Yes</u>)	
E2	What is your Ethernet media type? (<u>10BASE-T</u> , 10BASE2, or 10BASE5)	
E3	What is your Ethernet frame format? (<u>IEEE 802.3</u> or DIX Version 2.0)	
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.		

C.4.3 Ethernet Gateway Worksheet

Ethernet Gateway Worksheet																	
5494 location	<u>Atlanta</u>																
Fill in the blank or circle/underline the appropriate choice.																	
<p>A 5494 Ethernet address (or permanent address)</p> <p>B 5494 SAP (04 - FC)</p> <p>C Response timer (T1) (1 - 20)</p> <p>D Inactivity timer (Ti) (1 - 99, 30)</p> <p>E Receiver acknowledgment timer (T2) (1 - 255, 30)</p> <p>F Retry count (N2) (1 - 99, 8)</p> <p>G Maximum out (TW) (2 - 8)</p> <p>H Maximum in (N3) (1 - 4)</p>	<p>NWS Field Name</p> <table> <tr> <td>K</td> <td><u>40005494E000</u></td> </tr> <tr> <td>L</td> <td><u>04</u></td> </tr> <tr> <td>M</td> <td><u>2</u></td> </tr> <tr> <td>N</td> <td><u>30</u></td> </tr> <tr> <td>O</td> <td><u>30</u></td> </tr> <tr> <td>Q</td> <td><u>8</u></td> </tr> <tr> <td>R</td> <td><u>2</u></td> </tr> <tr> <td>S</td> <td><u>1</u></td> </tr> </table>	K	<u>40005494E000</u>	L	<u>04</u>	M	<u>2</u>	N	<u>30</u>	O	<u>30</u>	Q	<u>8</u>	R	<u>2</u>	S	<u>1</u>
K	<u>40005494E000</u>																
L	<u>04</u>																
M	<u>2</u>																
N	<u>30</u>																
O	<u>30</u>																
Q	<u>8</u>																
R	<u>2</u>																
S	<u>1</u>																
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.																	

C.4.4 SDLC Switched/V.25 bis Autodial Line with Ethernet Gateway Matching Parameters



C.4.5 5494 Configuration

The 5494 configuration values are as follows:

5494 Parameter	5494 Configuration Worksheet Field	NWS Field Name	Value	AS/400 Parameter Keyword
Communication mode	title of worksheet	AA	SDLC(0)	CRTLINS DLC
LAN Gateway support	E1 (1)	DD	Ethernet 802.3 (2)	N/A
Station address	A (1)	2	01	STNADR
Line type	B1 (1)	3	switched/V.25 bis (2)	CNN
Line facility	B2 (1)	3	full-duplex (1)	DUPLEX
Connection type	B3 (1)	3	point-to-point (1)	CNN
Data encoding	B4 (1)	3	NRZI (0)	NRZI

5494 LU name	B (2)	12	SDLCCP	RMTLOCNAME
5494 CP name	C (2)	13	SDLCCP	RMTCPNAME
5494 connection number	E (2)	15	5551234	CNNNBR
5494 ID number	G3 (2)	19	*	EXCHID
H1 AS/400 system 1 AS/400 LU name AS/400 network ID 5494 network ID Mode name AS/400 connection number	J (2) K (2) L (2) M (2) N (2)	H1:1 H1:2 H1:3 H1:4 H1:5	SYSNAME NETID NETID QRMTWSC 5554357	LCLLOCNAME LCLNETID RMTNETID MODD CALLNBR

Notes:

1. See "[AS/400 Communication Worksheet--SDLC](#)" in topic 5.4.
2. See "[Network Information Worksheet](#)" in topic 5.3.

C.4.6 AS/400 System Network Attributes

The AS/400 system network attributes are as follows:

AS/400 Parameter	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Current system name		SYSNAME	
Local network ID	LCLNETID	NETID	K (1)
Local control point name	LCLCPNAME	SYSNAME	
Default local location	LCLLOCNAME	SYSNAME	J
Note:			
1. See " Network Information Worksheet " in topic 5.3.			

Type **DSPNETA** to display AS/400 system network attributes.

C.4.7 AS/400 System Line Description

The AS/400 system line description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Line description	LIND	SDLC	
Category of line		*SDLC	
Resource names	RSRCNAME	LIN021	
Physical interface	INTERFACE	*RS232V24 (3)	
Connection type	CNN	*SWTPP	B1 (1) B3 (1)
Exchange identifier	EXCHID	*SYSGEN	
NRZI data encoding	NRZI	*YES	B4 (1)
Calling number	CALLNBR	5554357	N (2)
Maximum frame size	MAXFRAME	1033	
Duplex	DUPLEX	*FULL	B2 ¹
Notes:			
1. See "AS/400 Communication Worksheet--SDLC" in topic 5.4.			
2. See "Network Information Worksheet" in topic 5.3.			
3. If you are using a V.35 physical interface, the Value is *V35.			

Type **CRTLINSDLC** to create AS/400 system line descriptions.

Type **WRKCFGSTS *LIN** to display AS/400 system line descriptions.

Type **WRKHDWPRD** to determine the location of the AS/400 system line or hardware.

C.4.8 AS/400 System APPC Controller Description

The AS/400 system APPC controller description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Controller description	CTLD	SW5494	
Link type	LINKTYPE	*SDLC	
Switched connection	SWITCHED	*YES	
APPN-capable	APPN	*YES	
Switched line list	SWLNLST	SDLC	
Maximum frame size	MAXFRAME	1033	
Remote network identifier	RMTNETID	*NETADR	L (1)
Remote control point	RMTCPNAME	SDLCCP	C (1)
Exchange identifier	EXCHID	07300001	A (3) , G (2)

Connection number	CNNNBR	5551234	E
Station address	STNADR	01	A (3)
APPN node type	NODETYPE	*LENNODE (1)	

Notes:

1. See "[Network Information Worksheet](#)" in topic 5.3.
2. With field G3 set to *, the format for the EXCHID parameter is 073000xx, where X'073' is the block number assigned to the 5494 and xx is the station address from the "[AS/400 Communication Worksheet--SDLC](#)" in topic 5.4.
3. See "[AS/400 Communication Worksheet--SDLC](#)" in topic 5.4.

Type **CRTCTLAPPC** to create AS/400 system APPC controller descriptions.

Type **WRKCFGSTS *CTL** to display AS/400 system APPC controller descriptions.

C.4.9 AS/400 System Mode Description

The AS/400 system mode description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Mode description	MODD	QRMTWSC (1)	M (2)

Notes:

1. The mode name QRMTWSC is IBM-supplied.
2. See "[Network Information Worksheet](#)" in topic 5.3.

Type **DSPMODD** to display the mode name on your AS/400 system.

C.4.10 AS/400 System Remote Workstation Controller Description

The AS/400 system remote workstation controller description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Controller description	CTLD	SW5494RWS	
Controller model	MODEL	2 (2)	
Controller type	TYPE	5494	
Link type	LINKTYPE	*NONE	
Remote location	RMTLOCNAME	SDLCCP	B (1)
Local location	LCLLOCNAME	*NETATTR	J (1)
Remote network identifier	RMTNETID	*NETATTR	L (1)

Notes:

1. See "[Network Information Worksheet](#)" in topic [5.3](#).
2. Select 2 if your 5494 contains a 5494 LAN adapter. Otherwise, select 1.

Type **CRTCTRLRWS** to create AS/400 system remote workstation controller descriptions.

Type **WRKCFGSTS *CTL** to display AS/400 system remote workstation controller descriptions.

Note: In this example, the **5494 remote location name** and the **5494 remote control point** are the same. If the names had been chosen such that they were different, an entry in the Remote Configuration List to correlate the remote location name and the remote control point would be necessary. These names must correlate in order to associate the APPC controller with an RWS controller.

C.4.11 AS/400 System Device Description for Displays Attached to the 5494

The AS/400 system device descriptions for displays attached to the 5494 are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value
Device description	DEVD	DISP3196
Device class	DEVCLS	*RMT
Device type	TYPE	3196
Local location address	LOCADR	0B(1)
Attached controller	CTL	SW5494RWS

Note:

(1) To determine the local location address, see [Table 9 in topic 3.8.1](#).

Type **CRTDEVDSP** to create AS/400 system device descriptions for displays attached to the 5494.

Type **WRKCFGSTS *DEV** to display AS/400 system device descriptions for displays attached to the 5494.

C.4.12 Programmable Workstation Using DOS PC Support/400

The PS/2 computer configuration file contents are as follows:

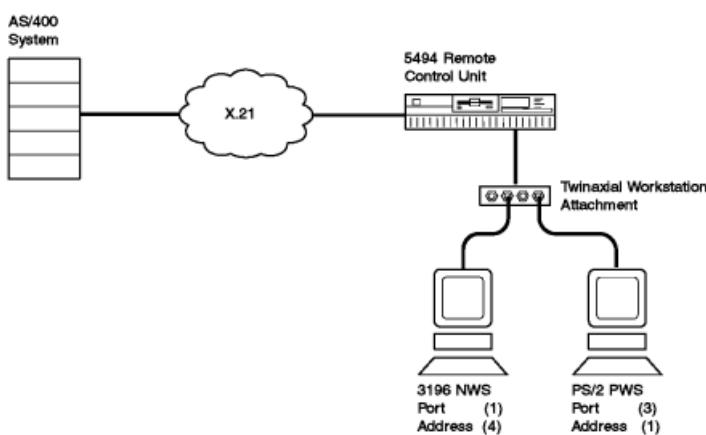
File Contents	AS/400 Parameter Keyword
SFLR 1,I,,SYSNAME	LCLLOCNAME
RTLN NETID.PS2	
RTYP ITRN	
TRLI SYSNAME, 40005494E000 (1)	LCLLOCNAME

Note:

1. The destination Ethernet address in the PS/2 computer configuration is the 5494 Ethernet address. See "[Ethernet Gateway Worksheet](#)" in topic C.4.3.

C.5 AS/400 System Connection Using an X.21 Switched Line

The following example describes an AS/400 system connection to the 5494 using an X.21 switched line.



This example includes sample completed worksheets, a matching parameters diagram, and tables that show the configuration parameters for the following items:

- The 5494
- AS/400 system network attributes
- Line description
- APPC controller description
- Mode description
- Remote workstation controller description
- Display device description
- The PWS.

Refer to [Topic 5, "Preparing the Configuration Worksheets,"](#) for descriptions of the worksheet fields. In the tables of configuration parameters, the values given in the column headed "5494 Configuration Worksheet Field" refer to a field on one of the worksheets.

Only those parameters that are relevant to the connection between the 5494 and the AS/400 system are included. Refer to your AS/400 system documentation for a complete list of configuration parameters.

The values shown for the parameters in this example are not necessarily the only acceptable values. Due to network and other considerations that depend on your environment, the values for your configuration can be different from those presented in this example.

Subtopics:

- [C.5.1 Network Information Worksheet](#)
- [C.5.2 AS/400 Communication Worksheet--X.21 Switched](#)
- [C.5.3 X.21 Switched Line Matching Parameters](#)
- [C.5.4 5494 Configuration](#)
- [C.5.5 AS/400 System Network Attributes](#)
- [C.5.6 AS/400 System Line Description](#)
- [C.5.7 AS/400 System APPC Controller Description](#)
- [C.5.8 AS/400 System Mode Description](#)
- [C.5.9 AS/400 System Remote Workstation Controller Description](#)
- [C.5.10 AS/400 System Device Description for Displays Attached to the 5494](#)
- [C.5.11 Programmable Workstation Using DOS PC Support/400](#)

C.5.1 Network Information Worksheet

Network Information Worksheet									
5494 location	<u>Oslo</u>								
	<table><thead><tr><th>NWS Field</th><th></th></tr><tr><th>Name</th><th></th></tr></thead><tbody><tr><td>A Default network ID</td><td>11 <u>NETID</u></td></tr><tr><td>B 5494 logical unit (LU) name</td><td>12 <u>X21CP</u></td></tr></tbody></table>	NWS Field		Name		A Default network ID	11 <u>NETID</u>	B 5494 logical unit (LU) name	12 <u>X21CP</u>
NWS Field									
Name									
A Default network ID	11 <u>NETID</u>								
B 5494 logical unit (LU) name	12 <u>X21CP</u>								

C	5494 control point (CP) name	13	<u>X21CP</u>
D	Default mode name	14	<u>QRMTWSC</u>
E	5494 connection number	15	222222
F	Logical connection retry parameters		
F1	Retry counter	16	<u>10</u>
F2	Retry interval	16	<u>6</u>
F3	Continuous retry	16	<u>No</u>
G	5494 identification		
G1	Serial number	17	<u>23-73625</u>
G2	System password	18	<u>5494PW</u>
G3	ID number	19	<u>*</u>
H	Primary AS/400 System	20	<u>1</u>
I	Concurrent host information		
I1	Concurrent host attachment	21	<u>No</u>
I2	Printer timeout	22	_____
J	AS/400 time/date synchronization	23	<u>No</u>

AS/400 System Information (Required for primary AS/400 system):

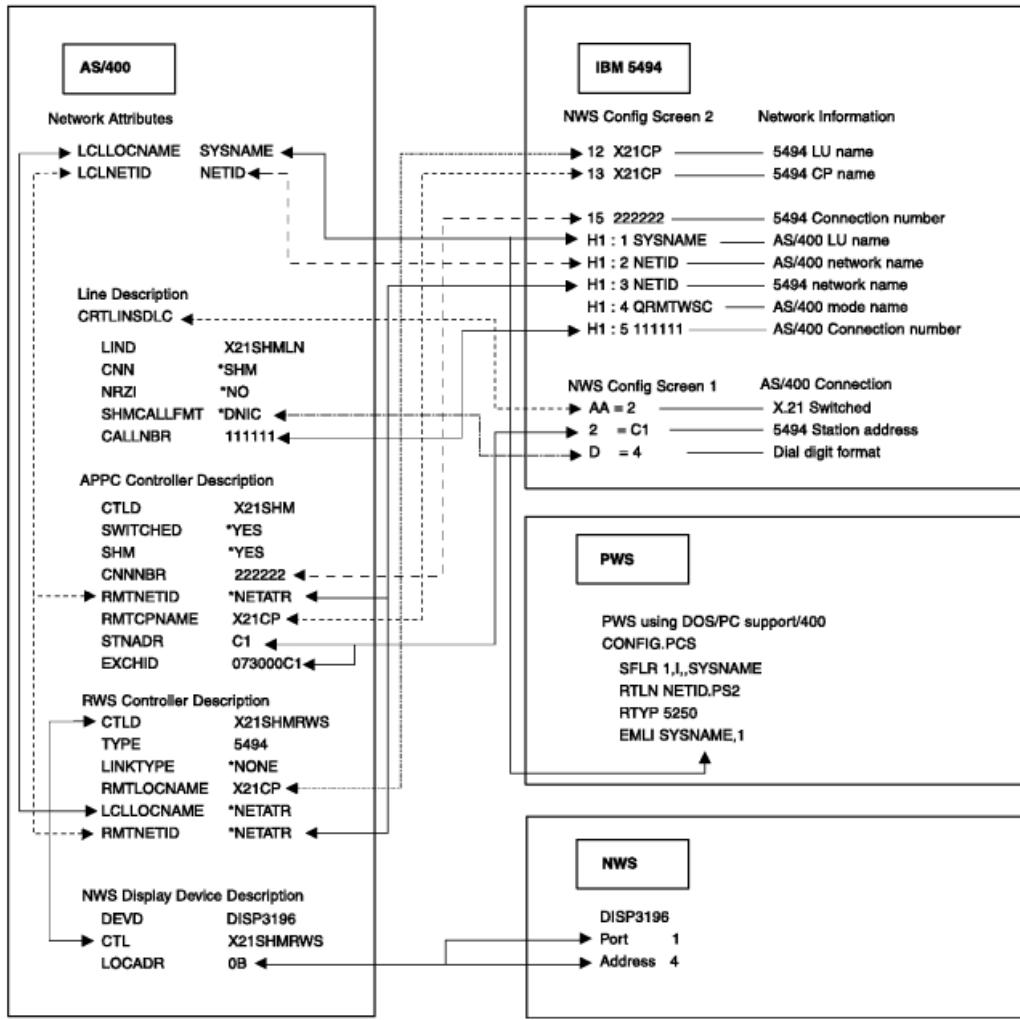
	AS/400 System 1 (H1)	AS/400 System 2 (H2)
K	H1:1 <u>SYSNAME</u>	H2:1 _____
L	H1:2 <u>NETID</u>	H2:2 _____
M	H1:3 <u>NETID</u>	H2:3 _____
N	H1:4 <u>QRMTWSC</u>	H2:4 _____
O	H1:5 <u>111111</u>	H2:5 _____
P	Controller Session Parameters	
P1	H1:11 <u>No</u>	H2:11 _____
P2	H1:11 <u>Accept</u>	H2:11 _____
	AS/400 System 3 (H3)	AS/400 System 4 (H4)
K	H3:1 _____	H4:1 _____
L	H3:2 _____	H4:2 _____
M	H3:3 _____	H4:3 _____
N	H3:4 _____	H4:4 _____
O	H3:5 _____	H4:5 _____
P	Controller Session Parameters	
P1	H3:11 _____	H4:11 _____
P2	H3:11 _____	H4:11 _____

Send the completed worksheet to the person who will configure the 5494 to ensure correct operation.

C.5.2 AS/400 Communication Worksheet--X.21 Switched

AS/400 Communication Worksheet--X.21 Switched	
5494 location	<u>Oslo</u>
Fill in the blank or circle/underline the appropriate choice:	
A 5494 SDLC station address (01 - FE)	<u>c1</u>
B Access code	_____
C Dial digit format (0 - 15, 4)	<u>4</u>
Fill in the blank or circle/underline the appropriate choice if you are using Short Hold mode:	
D Short Hold mode (SHM) retries:	
D1 Number of retries (0 - 255,	<u>5</u>)
D2 Seconds between retries (1 - 15,	<u>6</u>)
D3 Retry of optional call progress signals:	
_____ <u>49</u> _____, _____, _____, _____, _____, _____, _____, _____.	
D4 Direct call support:	
H1 AS/400 system 1 (No or Yes)	
H2 AS/400 system 2 (No or Yes)	
H3 AS/400 system 3 (No or Yes)	
H4 AS/400 system 4 (No or Yes)	
E Token-Ring Gateway support:	
E1 Are you using token-ring to attach workstations? (No or Yes)	
E2 What is your token-ring speed? (4 Mbps or 16 Mbps)	
F Ethernet Gateway support:	
F1 Are you using Ethernet to attach workstations? (No or Yes)	
F2 What is your Ethernet media type? (10BASE-T, 10BASE2, or 10BASE5)	
F3 What is your Ethernet frame format? (IEEE 802.3 or DIX Version 2.0)	
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.	

C.5.3 X.21 Switched Line Matching Parameters



C.5.4 5494 Configuration

The 5494 configuration values are as follows:

5494 Parameter	5494 Configuration Worksheet Field	NWS Field Name	Value	AS/400 Parameter Keyword
Station address	A (1)	2	C1	STNADR
Dial digit format	C (1)	D	4(DNIC)	SHMCALLFMT
5494 LU name	B (2)	12	X21CP	RMTLOCNAME
5494 CP name	C (2)	13	X21CP	RMTCPNAME
5494 connection number	E (2)	15	222222	CNNNBR
5494 ID number	G3 (2)	19	*	EXCHID
AS/400 system 1	J (2)	H1:1	SYSNAME	LCLLOCNAME
AS/400 LU name	K (2)	H1:2	NETID	LCLNETID

5494 network ID	L (2)	H1:3	NETID	RMTNETID
Mode name	M (2)	H1:4	QRMTWSC	MODD
AS/400 connection number	N (2)	H1:5	111111	CALLNBR

Notes:

1. See "[AS/400 Communication Worksheet--X.21 Switched](#)" in topic [5.5](#).
2. See "[Network Information Worksheet](#)" in topic [5.3](#).

C.5.5 AS/400 System Network Attributes

The AS/400 system network attributes are as follows:

AS/400 Parameter	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Current system name		SYSNAME	
Local network ID	LCLNETID	NETID	K (1)
Local control point name	LCLCPNAME	SYSNAME	
Default local location	LCLLOCNAME	SYSNAME	J (1)

Note:

1. See "[Network Information Worksheet](#)" in topic [5.3](#).

Type **DSPNETA** to display AS/400 system network attributes.

C.5.6 AS/400 System Line Description

The AS/400 system line description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Line description	LIND	X21SHMLN	
Physical interface	INTERFACE	*X21	
Connection type	CNN	*SHM	
SHM node type	SHMNODE	*T21	

NRZI data encoding	NRZI	*NO	
Exchange identifier	EXCHID	*SYSGEN	
SHM Call Format	SHMCALLFMT	*DNIC	C (1)
Calling number	CALLNBR	111111	N (2)
Maximum frame size	MAXFRAME	1033	

Notes:

- See "[AS/400 Communication Worksheet--X.21 Switched](#)" in topic 5.5.
- See "[Network Information Worksheet](#)" in topic 5.3.

Type **CRTLINSDLC** to create AS/400 system line descriptions.

Type **WRKCFGSTS *LIN** to display AS/400 system line descriptions.

Type **WRKHDWPRD** to determine the location of the AS/400 system line or hardware.

C.5.7 AS/400 System APPC Controller Description

The AS/400 system APPC controller description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Controller description	CTLD	X21SHM	
Short hold mode	SHM	*YES	
Maximum frame size	MAXFRAME	1033	
Remote network identifier	RMTNETID	*NETATTR	L (1)
Remote control point	RMTCPNAME	X21CP	C (1)
Exchange identifier	EXCHID	073000C1	A (2) , G3 (3)
Connection number	CNNNBR	222222	E (1)
Station address	STNADR	C1	A (2)
APPN-capable	APPN	*YES	
APPN node type	NODETYPE	*LENNODE	

Notes:

- See "[Network Information Worksheet](#)" in topic 5.3.
- See "[AS/400 Communication Worksheet--X.21 Switched](#)" in topic 5.5.
- With field G3 set to *, the format for the EXCHID parameter is 073000xx, where X'073' is the block number assigned to the 5494 and xx is the station

address from the "[AS/400 Communication Worksheet--X.21 Switched](#)" in [topic 5.5](#).

Type **CRTCTLAPPC** to create AS/400 system APPC controller descriptions.

Type **WRKCFGSTS *CTL** to display AS/400 system APPC controller descriptions.

C.5.8 AS/400 System Mode Description

The AS/400 system mode description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Mode description	MODD	QRMTWSC (1)	M (2)

Notes:

1. The mode name QRMTWSC is IBM-supplied.
2. See "[Network Information Worksheet](#)" in [topic 5.3](#).

Type **DSPMODD** to display the mode name on your AS/400 system.

C.5.9 AS/400 System Remote Workstation Controller Description

The AS/400 system remote workstation controller description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Controller description	CTLD	X21SHMRWS	
Controller type	TYPE	5494	
Controller model	MODEL	1 (2)	
Link type	LINKTYPE	*NONE	

Remote location	RMTLOCNAME	X21CP	B (1)
Local location	LCLLOCNAME	*NETATR	J (:1 1)
Remote network identifier	RMTNETID	*NETATR	L (1)
Notes:			
1. See " AS/400 Communication Worksheet--X.21 Switched " in topic 5.5 .			
2. Select 2 if your 5494 contains a 5494 LAN adapter. Otherwise, select 1.			

Type **CRTCTRLRWS** to create AS/400 system remote workstation controller descriptions.

Type **WRKCFGSTS *CTL** to display AS/400 system remote workstation controller descriptions.

Note: In this example, the 5494 remote location name and the 5494 remote control point are the same. If the names had been chosen such that they were different, an entry in the Remote Configuration List to correlate the remote location name and the remote control point would be necessary. These names must correlate in order to associate the APPC controller with an RWS controller.

C.5.10 AS/400 System Device Description for Displays Attached to the 5494

The AS/400 system device descriptions for displays attached to the 5494 are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value
Device description	DEVD	DISP3196
Device class	DEVCLS	*RMT
Device type	TYPE	3196
Local location address	LOCADR	0B(1)
Attached controller	CTL	X21SHMRWS
Note:		
(1) To determine the local location address, see Table 9 in topic 3.8.1 .		

Type **CRTDEVDSP** to create AS/400 system device descriptions for displays attached to the 5494.

Type **WRKCFGSTS *DEV** to display AS/400 system device descriptions for displays attached to the 5494.

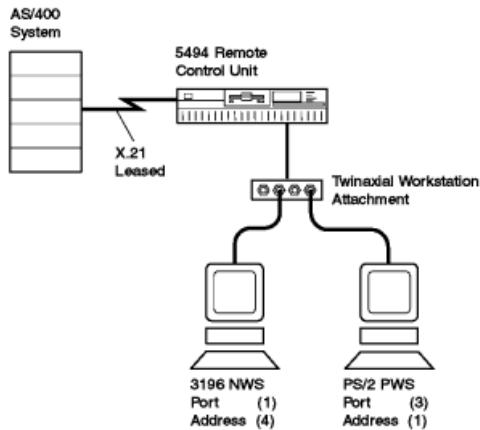
C.5.11 Programmable Workstation Using DOS PC Support/400

The PS/2 computer configuration file contents are as follows:

File Contents	AS/400 Parameter Keyword
SFLR 1,I,,SYSNAME	LCLLOCNAME
RTLN NETID.PS2	
RTYP 5250	
EMLI SYSNAME, 1	LCLLOCNAME

C.6 AS/400 System Connection Using an X.21 Leased Line

The following example describes an AS/400 system connection to the 5494 using an X.21 leased line.



This example includes sample completed worksheets, a matching parameters diagram, and tables that show the configuration parameters for the following items:

- The 5494
- AS/400 system network attributes
- Line description
- APPC controller description
- Mode description
- Remote workstation controller description
- Display device description
- The PWS.

Refer to [Topic 5, "Preparing the Configuration Worksheets,"](#) for descriptions of the worksheet fields. In the tables of configuration parameters, the values given in the column headed "5494 Configuration Worksheet Field" refer to a field on one of the worksheets.

Only those parameters that are relevant to the connection between the 5494 and the AS/400 system are included. Refer to your AS/400 system documentation for a complete list of configuration parameters.

The values shown for the parameters in this example are not necessarily the only acceptable values. Due to network and other considerations that depend on your environment, the values for your configuration can be different from those presented in this example.

Subtopics:

- [C.6.1 Network Information Worksheet](#)
- [C.6.2 AS/400 Communication Worksheet-- X.21 Leased Line](#)
- [C.6.3 X.21 Leased Line Matching Parameters](#)
- [C.6.4 5494 Configuration](#)
- [C.6.5 AS/400 System Network Attributes](#)
- [C.6.6 AS/400 System Line Description](#)
- [C.6.7 AS/400 System APPC Controller Description](#)
- [C.6.8 AS/400 System Mode Description](#)
- [C.6.9 AS/400 System Remote Workstation Controller Description](#)
- [C.6.10 AS/400 System Device Description for Displays Attached to the 5494](#)
- [C.6.11 Programmable Workstation Using DOS PC Support/400](#)

C.6.1 Network Information Worksheet

Network Information Worksheet	
5494 location	<u>Frankfurt</u>
	NWS Field Name
A Default network ID	11 <u>NETID</u>
B 5494 logical unit (LU) name	12 <u>X21CP</u>
C 5494 control point (CP) name	13 <u>X21CP</u>
D Default mode name	14 <u>ORMTWSC</u>
E 5494 connection number	15 _____
F Logical connection retry parameters	
F1 Retry counter	16 <u>10</u>
F2 Retry interval	16 <u>6</u>
F3 Continuous retry	16 <u>Yes</u>
G 5494 identification	
G1 Serial number	17 <u>23-73626</u>
G2 System password	18 <u>X57T3</u>
G3 ID number	19 <u>*</u>
H Primary AS/400 System	20 <u>1</u>

I	Concurrent host information		
I1	Concurrent host attachment	21	<u>No</u>
I2	Printer timeout	22	_____
J	AS/400 time/date synchronization	23	<u>No</u>

AS/400 System Information (Required for primary AS/400 system):

	AS/400 System 1 (H1)	AS/400 System 2 (H2)
K	H1:1 <u>SYSNAME</u>	H2:1 _____
L	H1:2 <u>NETID</u>	H2:2 _____
M	H1:3 <u>NETID</u>	H2:3 _____
N	H1:4 <u>ORMTWSC</u>	H2:4 _____
O	H1:5 _____	H2:5 _____
P	Controller Session Parameters	
P1	Initiation	H2:11 _____
P2	Disconnect Request	H2:11 <u>Accept</u>

	AS/400 System 3 (H3)	AS/400 System 4 (H4)
K	H3:1 _____	H4:1 _____
L	H3:2 _____	H4:2 _____
M	H3:3 _____	H4:3 _____
N	H3:4 _____	H4:4 _____
O	H3:5 _____	H4:5 _____
P	Controller Session Parameters	
P1	Initiation	H4:11 _____
P2	Disconnect Request	H4:11 <u>Accept</u>

Send the completed worksheet to the person who will configure the 5494 to ensure correct operation.

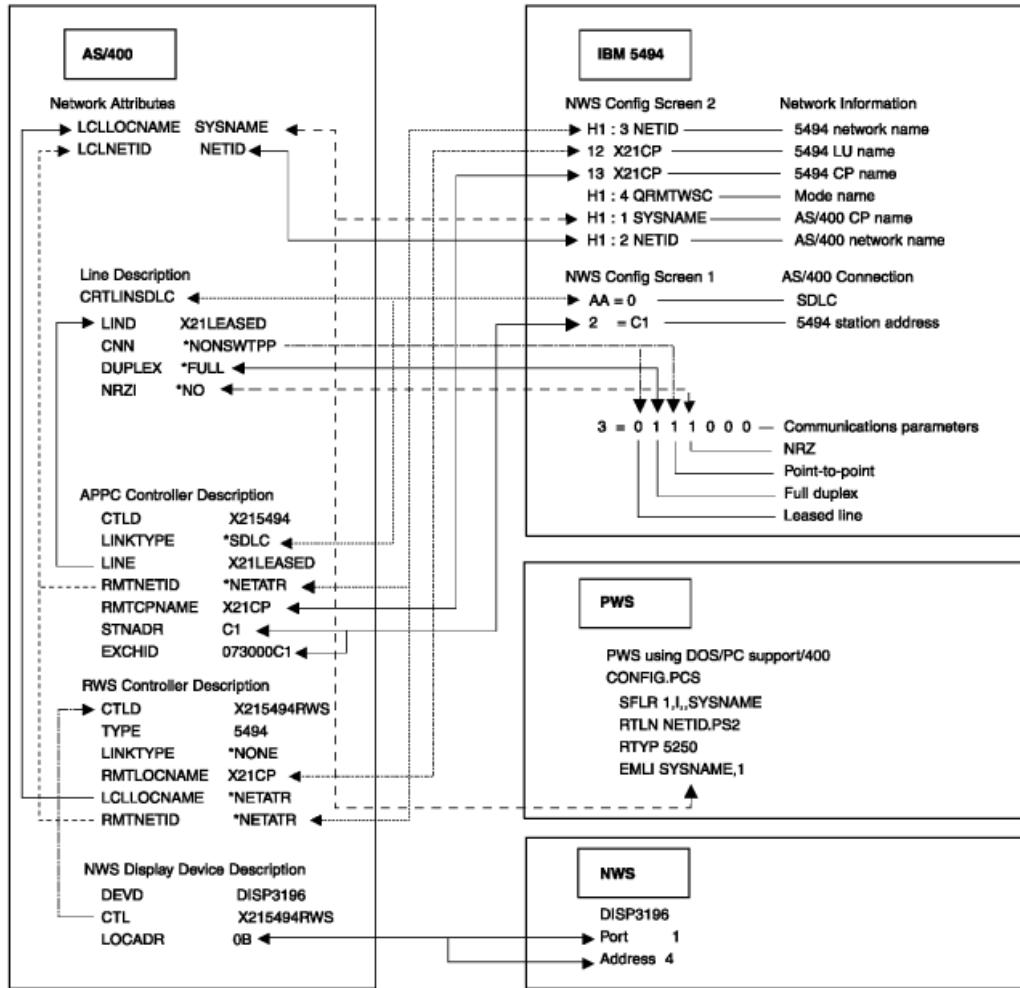
C.6.2 AS/400 Communication Worksheet-- X.21 Leased Line

AS/400 Communication Worksheet--X.21 Leased	
5494 location	<u>Frankfurt</u>
Fill in the blank or circle/underline the appropriate choice. For X.21 leased communication, some of these parameters have only one choice.	
A	5494 SDLC station address (01 - FE) <u>C1</u>
B	Line and modem or DCE configuration information:
B1	Line type (<u>leased</u>)

- B2** Line facility (**full-duplex**)
 - B3** Connection type (**multipoint** or point-to-point)
 - B4** Data encoding (**NRZ**)
 - B5** Connection method (**DTR**)
 - B6** Send leading pad (**No**)
 - B7** Local loopback support (**No**)
- C** Token-Ring Gateway support:
- C1** Are you using token-ring to attach workstations? (No or Yes)
 - C2** What is your token-ring speed? (4 Mbps or 16 Mbps)
- D** Ethernet Gateway support:
- D1** Are you using Ethernet to attach workstations? (No or Yes)
 - D2** What is your Ethernet media type? (10BASE-T, 10BASE2, or 10BASE5)
 - D3** What is your Ethernet frame format? (IEEE 802.3 or DIX Version 2.0)

Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.

C.6.3 X.21 Leased Line Matching Parameters



C.6.4 5494 Configuration

The 5494 configuration values are as follows:

5494 Parameter	5494 Configuration Worksheet Field	NWS Field Name	Value	AS/400 Parameter Keyword
Station address	A (1)	2	C1	STNADR
Line type	B1 (1)	3	leased (0)	CNN
Line facility	B2 (1)	3	full-duplex (1)	DUPLEX
Connection type	B3 (1)	3	point-to-point (1)	CNN
Data encoding	B4 (1)	3	NRZ (1)	NRZI
5494 LU name	B (2)	12	X21CP	RMTLOCNAME
5494 CP name	C (2)	13	X21CP	RMTCPNAME
5494 connection number	E (2)	15	not used	
5494 ID number	G3 (2)	19	*	EXCHID
H1 AS/400 system 1				
AS/400 LU name	J (2)	H1:1	SYSNAME	LCLLOCNAME
AS/400 network ID	K (2)	H1:2	NETID	LCLNETID
5494 network ID	L (2)	H1:3	NETID	RMTNETID
Mode name	M (2)	H1:4	QRMTWSC	MODD
AS/400 connection number	N (2)	H1:5	not used	

Notes:

1. See "[AS/400 Communication Worksheet--X.21 Leased](#)" in topic 5.6.
2. See "[Network Information Worksheet](#)" in topic 5.3.

C.6.5 AS/400 System Network Attributes

The AS/400 system network attributes are as follows:

AS/400 Parameter	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Current system name		SYSNAME	
Local network ID	LCLNETID	NETID	K (1)
Local control point name	LCLCPNAME	SYSNAME	
Default local location	LCLLOCNAME	SYSNAME	J (1)

Note:

1. See "[Network Information Worksheet](#)" in topic 5.3.

Type **DSPNETA** to display AS/400 system network attributes.

C.6.6 AS/400 System Line Description

The AS/400 system line description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Line description	LIND	X21LEASED	
Physical interface	INTERFACE	*X21	
Connection type	CNN	*NONSWTPP	B1 (1) B3 (1)
Exchange identifier	EXCHID	*SYSGEN	
NRZI data encoding	NRZI	*NO	B4 (1)
Maximum frame size	MAXFRAME	1033	
Duplex	DUPLEX	*FULL	B2 (1)

Note:

- See "[AS/400 Communication Worksheet--X.21 Leased](#)" in topic 5.6.

Type **CRTLINSDLC** to create AS/400 system line descriptions.

Type **WRKCFGSTS *LIN** to display AS/400 system line descriptions.

Type **WRKHDWPRD** to determine the location of the AS/400 system line or hardware.

C.6.7 AS/400 System APPC Controller Description

The AS/400 system APPC controller description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Controller description	CTLD	X215494	
Link type	LINKTYPE	*SDLC	
Attached nonswitched line	LINE	X21LEASED	
Switched connection	SWITCHED	*NO	
Maximum frame size	MAXFRAME	1033	
Remote network identifier	RMTNETID	*NETATTR	L (1)
Remote control point	RMTCPNAME	X21CP	C (1)
Exchange identifier	EXCHID	073000C1	A (2) , G3 (3)
Station address	STNADR	C1	A (2)
APPN-capable	APPN	*YES	
APPN node type	NODETYPE	*LENNODE	

Notes:

- See "[Network Information Worksheet](#)" in topic 5.3.
- See "[AS/400 Communication Worksheet--X.21 Leased](#)" in topic 5.6.
- With field G3 set to *, the format for the EXCHID parameter is 073000xx, where X'073' is the block number assigned to the 5494 and xx is the station address from the [AS/400 Communication Worksheet--X.21 Leased](#) in topic 5.6.

Type **CRTCTLAPPC** to create AS/400 system APPC controller descriptions.

Type **WRKCFGSTS *CTL** to display AS/400 system APPC controller descriptions.

C.6.8 AS/400 System Mode Description

The AS/400 system mode description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Mode description	MODD	QRMTWSC (1)	M (2)
Notes:			
1. The mode name QRMTWSC is IBM-supplied in Version 2 Release 2. 2. See " Network Information Worksheet " in topic 5.3.			

Type **DSPMODD** to display the mode name on your AS/400 system.

C.6.9 AS/400 System Remote Workstation Controller Description

The AS/400 system remote workstation controller description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Controller description	CTLD	X215494RWS	
Controller type	TYPE	5494	
Controller model	MODEL	1 (2)	
Link type	LINKTYPE	*NONE	
Remote location	RMTLOCNAME	X21CP	B
Local location	LCLLOCNAME	*NETATR	J (1)
Remote network identifier	RMTNETID	*NETATR	L (1)
Notes:			

- | |
|--|
| 1. See " Network Information Worksheet " in topic 5.3. |
| 2. Select 2 if your 5494 contains a 5494 LAN adapter. Otherwise, select 1. |
-

Type **CRTCTLRWS** to create AS/400 system remote workstation controller descriptions.

Type **WRKCFGSTS *CTL** to display AS/400 system remote workstation controller descriptions.

Note: In this example, the 5494 remote location name and the 5494 remote control point are the same. If the names had been chosen such that they were different, an entry in the Remote Configuration List to correlate the remote location name and the remote control point would be necessary. These names must correlate in order to associate the APPC controller with an RWS controller.

C.6.10 AS/400 System Device Description for Displays Attached to the 5494

The AS/400 system device descriptions for displays attached to the 5494 are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value
Device description	DEVD	DISP3196
Device class	DEVCLS	*RMT
Device type	TYPE	3196
Local location address	LOCADR	OB(1)
Attached controller	CTL	X215494RWS
Note:		
(1) To determine the local location address, see Table 9 in topic 3.8.1 .		

Type **CRTDEVDSP** to create AS/400 system device descriptions for displays attached to the 5494.

Type **WRKCFGSTS *DEV** to display AS/400 system device descriptions for displays attached to the 5494.

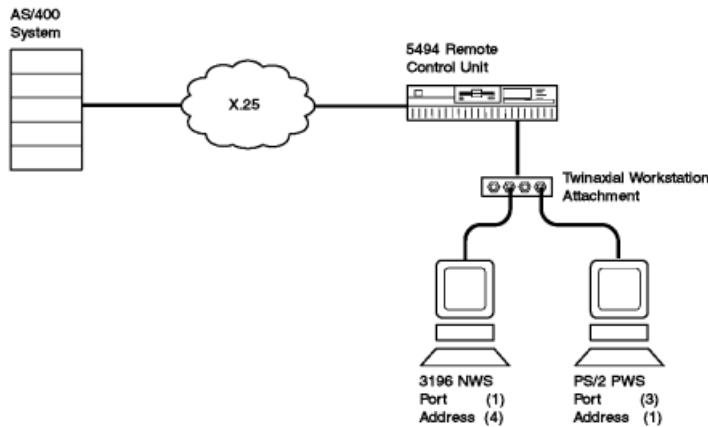
C.6.11 Programmable Workstation Using DOS PC Support/400

The PS/2 computer configuration file contents are as follows:

File Contents	AS/400 Parameter Keyword
SFLR 1,I,,SYSNAME	LCLLOCNAME
RTLN NETID.PS2	
RTYP 5250	
EMLI SYSNAME, 1	LCLLOCNAME

C.7 AS/400 System Connection Using an X.25 PVC

The following example describes an AS/400 system connection to the 5494 using an X.25 PVC.



This example includes sample completed worksheets, a matching parameters diagram, and tables that show the configuration parameters for the following items:

- The 5494
- AS/400 system network attributes
- Line description
- APPC controller description
- Mode description
- Remote workstation controller description
- Display device description
- The PWS.

Refer to [Topic 5, "Preparing the Configuration Worksheets,"](#) for descriptions of the worksheet fields. In the tables of configuration parameters, the values given in the column headed "5494 Configuration Worksheet Field" refer to a field on one of the worksheets.

Only those parameters that are relevant to the connection between the 5494 and the AS/400 system are included. Refer to your AS/400 system documentation for a complete list of configuration parameters.

The values shown for the parameters in this example are not necessarily the only acceptable values. Due to network and other considerations that depend on your environment, the values for your configuration can be different from those presented in this example.

Subtopics:

- [C.7.1 Network Information Worksheet](#)
- [C.7.2 AS/400 Communication Worksheet--X.25](#)
- [C.7.3 X.25 PVC Matching Parameters](#)
- [C.7.4 5494 Configuration](#)
- [C.7.5 AS/400 System Network Attributes](#)
- [C.7.6 AS/400 System Line Description](#)
- [C.7.7 AS/400 System APPC Controller Description](#)
- [C.7.8 AS/400 System Mode Description](#)
- [C.7.9 AS/400 System Remote Workstation Controller Description](#)
- [C.7.10 AS/400 System Device Description for Displays Attached to the 5494](#)
- [C.7.11 Programmable Workstation Using DOS PC Support/400](#)

C.7.1 Network Information Worksheet

Network Information Worksheet		
5494 location <u>Tokyo</u>		NWS Field Name
A	Default network ID	11 <u>NETID</u>
B	5494 logical unit (LU) name	12 <u>X25P5494</u>
C	5494 control point (CP) name	13 <u>X25P5494</u>
D	Default mode name	14 <u>QRMTWSC</u>
E	5494 connection number	15 _____
F	Logical connection retry parameters	
F1	Retry counter	16 <u>10</u>
F2	Retry interval	16 <u>6</u>
F3	Continuous retry	16 <u>Yes</u>
G	5494 identification	
G1	Serial number	17 <u>12-ABCDE</u>
G2	System password	18 <u>A3C27</u>
G3	ID number	19 <u>*</u>
H	Primary AS/400 System	20 <u>1</u>
I	Concurrent host information	
I1	Concurrent host attachment	21 <u>No</u>
I2	Printer timeout	22 _____
J	AS/400 time/date synchronization	23 <u>No</u>

AS/400 System Information (Required for primary AS/400 system):

	AS/400 System 1 (H1)	AS/400 System 2 (H2)
K AS/400 LU name	H1:1 <u>SYSNAME</u>	H2:1 _____
L AS/400 network ID	H1:2 <u>NETID</u>	H2:2 _____
M 5494 network ID	H1:3 <u>NETID</u>	H2:3 _____
N Mode name	H1:4 <u>QRMTWSC</u>	H2:4 _____
O Connection number	H1:5 _____	H2:5 _____
P Controller Session Parameters		
P1 Initiation	H1:11 <u>No</u>	H2:11 _____
P2 Disconnect Request	H1:11 <u>Accept</u>	H2:11 _____
	AS/400 System 3 (H3)	AS/400 System 4 (H4)
K AS/400 LU name	H3:1 _____	H4:1 _____
L AS/400 network ID	H3:2 _____	H4:2 _____
M 5494 network ID	H3:3 _____	H4:3 _____
N Mode name	H3:4 _____	H4:4 _____
O Connection number	H3:5 _____	H4:5 _____
P Controller Session Parameters		
P1 Initiation	H3:11 _____	H4:11 _____
P2 Disconnect Request	H3:11 _____	H4:11 _____

Send the completed worksheet to the person who will configure the 5494 to ensure correct operation.

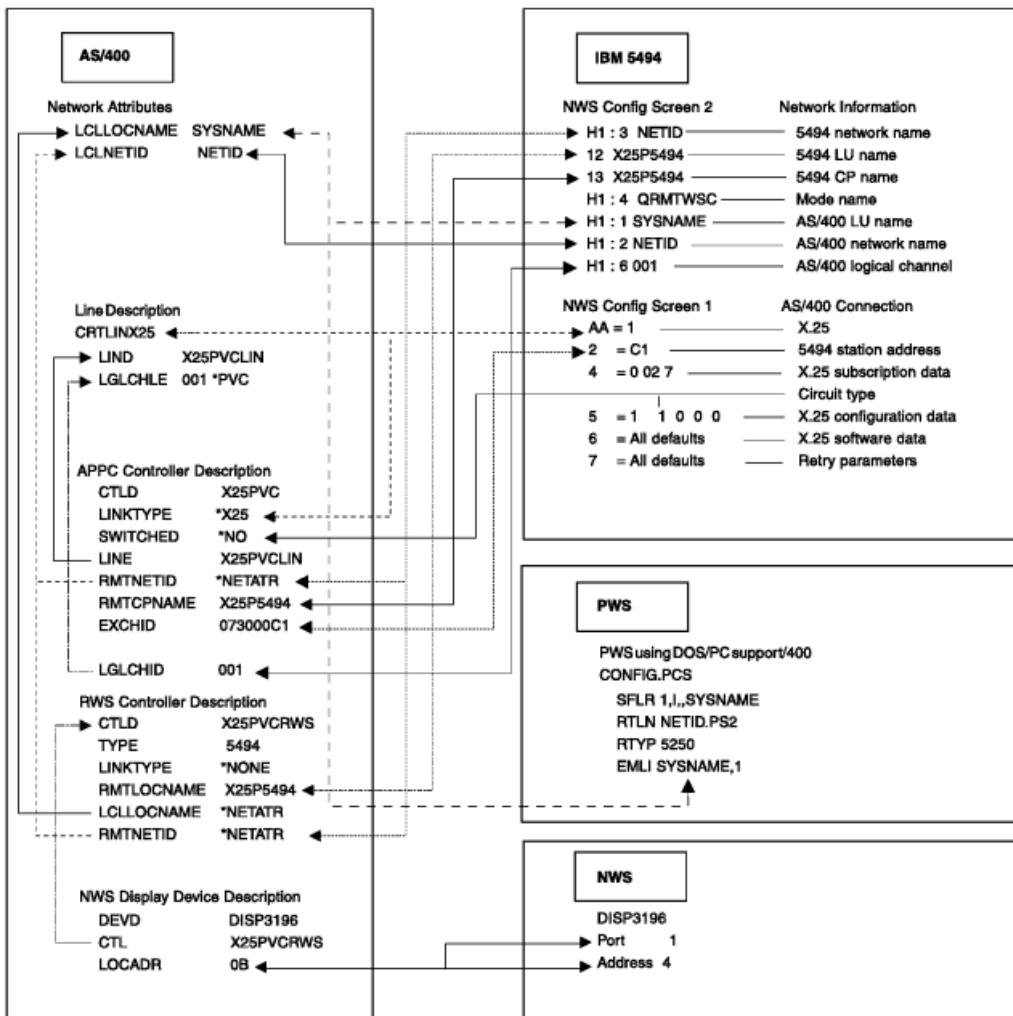
C.7.2 AS/400 Communication Worksheet--X.25

AS/400 Communication Worksheet--X.25	
5494 location	<u>Tokyo</u>
Fill in the blank or circle/underline the appropriate choice:	
A 5494 station address (01 - FE)	<u>C1</u>
B Packet level sequence numbering (<u>modulo 8</u> or modulo 128)	
C Packet window size (2 - 15)	<u>2</u>
D Link window size (1 - 7)	<u>7</u>
E Packet size (64 bytes, <u>128 bytes</u> , 256 bytes, 512 bytes, or 1024 bytes)	
F Circuit type (<u>PVC only</u> , SVC answer only, all others)	
G Flow control negotiation allowed (<u>No</u> or Yes)	
H Manual options allowed (<u>No</u> or Yes)	
I Local loopback supported (<u>No</u> or Yes)	

- J** Reverse charging accepted (No or Yes)
- K** Logical link control (QLLC or ELLC)
- L** Telenet (**) -type network attachment (No or Yes)
- M** Link initiation (network or 5494; or network only)
- N** Network subscription (CCITT 1988, CCITT 1984, or CCITT 1980)
- O** Diagnostic code format (1984/1988 SNA, 1984/1988 ISO, or 1980 SNA)
- P** Retry parameters:
- P1** Number of retries (0 - 255, 10) 10
- P2** Seconds between retries (1 - 60, 3) 3
- Q** Logical channel (optional):
- H1 AS/400 system 1 (001 - FFF) 001
- H2 AS/400 system 2 (001 - FFF) 025
- H3 AS/400 system 3 (001 - FFF) 03D
- H4 AS/400 system 4 (001 - FFF) 040
- R** Token-Ring Gateway support:
- R1** Are you using token-ring to attach workstations? (No or Yes)
- R2** What is your token-ring speed? (4 Mbps or 16 Mbps)
- S** Ethernet Gateway support:
- S1** Are you using Ethernet to attach workstations? (No or Yes)
- S2** What is your Ethernet media type? (10BASE-T, 10BASE2, or 10BASE5)
- S3** What is your Ethernet frame format? (IEEE 802.3 or DIX Version 2.0)

Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.

C.7.3 X.25 PVC Matching Parameters



C.7.4 5494 Configuration

The 5494 configuration values are as follows:

5494 Parameter	5494 Configuration Worksheet Field	NWS Field Name	Value	AS/400 Parameter Keyword
Station address	A (1)	2	C1	
Packet level sequence number	B (1)	4	modulo 8 (0)	MODULUS
Packet size	E (1)	5	128 (1)	DFTPKTSIZE
Circuit type	F (1)	5	PVC (1)	LGLCHLE
Logical link control	K (1)	6	QLLC (0)	LINKPCL
Network subscription	N (1)	6	1988 (0)	NETLVL
5494 LU name	B (2)	12	X25P5494	RMTLOCNAME

5494 CP name	C (2)	13	X25P5494	RMTCPNAME
5494 connection number	E (2)	15	not used	
5494 ID number	G3 (2)	19	*	EXCHID
H1 AS/400 system 1				
AS/400 LU name	J (2)	H1:1	SYSNAME	LCLLOCNAME
AS/400 network ID	K (2)	H1:2	NETID	LCLNETID
5494 network ID	L (2)	H1:3	NETID	RMTNETID
Mode name	M (2)	H1:4	QRMTWSC	MODD
AS/400 connection number	N (2)	H1:5	not used	
Logical channel number	Q (1)	H1:6	001	LGLCHLE

Notes:

1. See "[AS/400 Communication Worksheet--X.25](#)" in topic 5.7.
2. See "[Network Information Worksheet](#)" in topic 5.3.

C.7.5 AS/400 System Network Attributes

The AS/400 system network attributes are as follows:

AS/400 Parameter	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Current system name		SYSNAME	
Local network ID	LCLNETID	NETID	K (1)
Local control point name	LCLCPNAME	SYSNAME	
Default local location	LCLLOCNAME	SYSNAME	J (1)

Note:

1. See "[Network Information Worksheet](#)" in topic 5.3.

C.7.6 AS/400 System Line Description

The AS/400 system line description parameters are as follows:

	AS/400	5494	
--	--------	------	--

AS/400 Parameter	Parameter Keyword	Value	Configuration Worksheet Field
Line description	LIND	X25PVCLIN	
Physical interface	INTERFACE	*RS232V24	
Connection type	CNN	*NONSWTPP	
Logical channel entries	LGLCHLE	001 *PVC	Q (1) F (1)
X.25 DCE support	X25DCE	*NO	
Exchange identifier	EXCHID	*SYSGEN	
Default packet size	DFTPKTSIZE	128 *TRANSMIT	E (1)
Modulus	MODULUS	8	B (1)
Default window size	DFTWDWSIZE	2 *TRANSMIT	D (1)

Note:

- See "[AS/400 Communication Worksheet--X.25](#)" in topic 5.7.

Type **CRTLINX25** to create AS/400 system line descriptions.

Type **WRKCFGSTS *LIN** to display AS/400 system line descriptions.

Type **WRKHWDWPRD** to determine the location of the AS/400 system line or hardware.

C.7.7 AS/400 System APPC Controller Description

The AS/400 system APPC controller description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Controller description	CTLD	X25PVC	
Link type	LINKTYPE	*X25	
Switched connection	SWITCHED	*NO	
APPN-capable	APPN	*YES	
Attached nonswitched line	LINE	X25PVCLIN	
Maximum frame size	MAXFRAME	1033	
Remote network identifier	RMTNETID	*NETATR	L (1)
Remote control point	RMTCPNAME	X25P5494	C (1)

Exchange identifier	EXCHID	073000C1	A (2), G3 (3)
X.25 network level	NETLVL	1988	N (2)
X.25 link level protocol	LINKPCL	*QLLC	K (2)
X.25 logical channel ID	LGLCHLID	001	Q (2)
APPN node type	NODETYPE	*LENNODE	

Notes:

1. See "[Network Information Worksheet](#)" in topic 5.3.
2. See "[AS/400 Communication Worksheet--X.25](#)" in topic 5.7.
3. With field G3 set to *, the format for the EXCHID parameter is 073000xx, where X'073' is the block number assigned to the 5494 and xx is the station address from the "[AS/400 Communication Worksheet--X.25](#)" in topic 5.7.

Type **CRTCTLAPPC** to create AS/400 system APPC controller descriptions.

Type **WRKCFGSTS *CTL** to display AS/400 system APPC controller descriptions.

C.7.8 AS/400 System Mode Description

The AS/400 system mode description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Mode description	MODD	QRMTWSC (1)	M (2)
Notes:			
<ol style="list-style-type: none"> 1. The mode name QRMTWSC is IBM-supplied. 2. See "Network Information Worksheet" in topic 5.3. 			

Type **DSPMODD** to display the mode name on your AS/400 system.

C.7.9 AS/400 System Remote Workstation Controller Description

The AS/400 system remote workstation controller description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Controller description	CTLD	X25PVCRWS	
Controller type	TYPE	5494	
Controller model	MODEL	1 (2)	
Link type	LINKTYPE	*NONE	
Remote location	RMTLOCNAME	X25P5494	B (1)
Local location	LCLLOCNAME	*NETATR	J (1)
Remote network identifier	RMTNETID	*NETATR	L (1)

Notes:

1. See "[Network Information Worksheet](#)" in topic [5.3](#).
2. Select 2 if your 5494 contains a 5494 LAN adapter. Otherwise, select 1.

Type **CRTCTRLRWS** to create AS/400 system remote workstation controller descriptions.

Type **WRKCFGSTS *CTL** to display AS/400 system remote workstation controller descriptions.

Note: In this example, the **5494 remote location name** and the **5494 remote control point** are the same. If the names had been chosen such that they were different, an entry in the Remote Configuration List to correlate the remote location name and the remote control point would be necessary. These names must correlate in order to associate the APPC controller with an RWS controller.

C.7.10 AS/400 System Device Description for Displays Attached to the 5494

The AS/400 system device descriptions for displays attached to the 5494 are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value
Device description	DEVD	DISP3196
Device class	DEVCLS	*RMT
Device type	TYPE	3196
Local location address	LOCADR	0B(1)
Attached controller	CTL	X25PVCRWS

Note:

(1) To determine the local location address, see [Table 9 in topic 3.8.1](#).

Type **CRTDEVDSP** to create AS/400 system device descriptions for displays attached to the 5494.

Type **WRKCFGSTS *DEV** to display AS/400 system device descriptions for displays attached to the 5494.

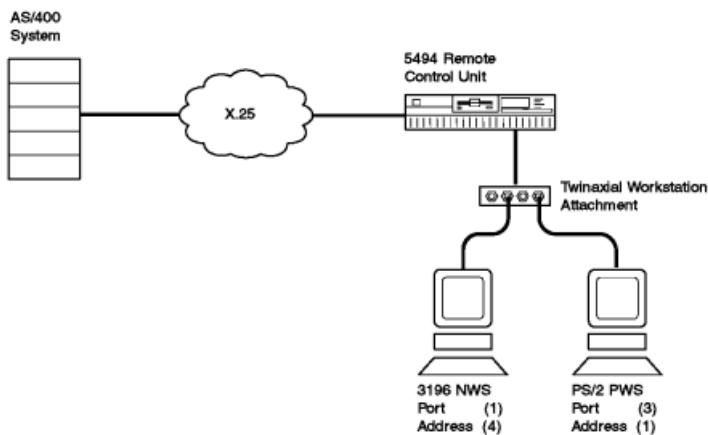
C.7.11 Programmable Workstation Using DOS PC Support/400

The PS/2 computer configuration file contents are as follows:

File Contents	AS/400 Parameter Keyword
SFLR 1,I,,SYSNAME	LCLLOCNAME
RTLN NETID.PS2	
RTYP 5250	
EMLI SYSNAME, 1	LCLLOCNAME

C.8 AS/400 System Connection Using an X.25 SVC

The following example describes an AS/400 system connection to the 5494 using an X.25 SVC.



This example includes sample completed worksheets, a matching parameters diagram, and tables that show the configuration parameters for the following items:

- The 5494
- AS/400 system network attributes
- Line description
- APPC controller description
- Mode description
- Remote workstation controller description
- Display device description
- The PWS.

Refer to [Topic 5, "Preparing the Configuration Worksheets,"](#) for descriptions of the worksheet fields. In the tables of configuration parameters, the values given in the column headed "5494 Configuration Worksheet Field" refer to a field on one of the worksheets.

Only those parameters that are relevant to the connection between the 5494 and the AS/400 system are included. Refer to your AS/400 system documentation for a complete list of configuration parameters.

The values shown for the parameters in this example are not necessarily the only acceptable values. Due to network and other considerations that depend on your environment, the values for your configuration can be different from those presented in this example.

Subtopics:

- [C.8.1 Network Information Worksheet](#)
- [C.8.2 AS/400 Communication Worksheet--X.25](#)
- [C.8.3 X.25 SVC Matching Parameters](#)
- [C.8.4 5494 Configuration](#)
- [C.8.5 AS/400 System Network Attributes](#)
- [C.8.6 AS/400 System Line Description](#)
- [C.8.7 AS/400 System APPC Controller Description](#)
- [C.8.8 AS/400 System Mode Description](#)
- [C.8.9 AS/400 System Remote Workstation Controller Description](#)
- [C.8.10 AS/400 System Device Description for Displays Attached to the 5494](#)
- [C.8.11 Programmable Workstation Using DOS PC Support/400](#)

C.8.1 Network Information Worksheet

Network Information Worksheet	
5494 location	<u>Tokyo</u>
	NWS Field Name
A Default network ID	11 <u>NETID</u>
B 5494 logical unit (LU) name	12 <u>X25S5494</u>
C 5494 control point (CP) name	13 <u>X25S5494</u>
D Default mode name	14 <u>ORMTWSC</u>
E 5494 connection number	15 5551234
F Logical connection retry parameters	

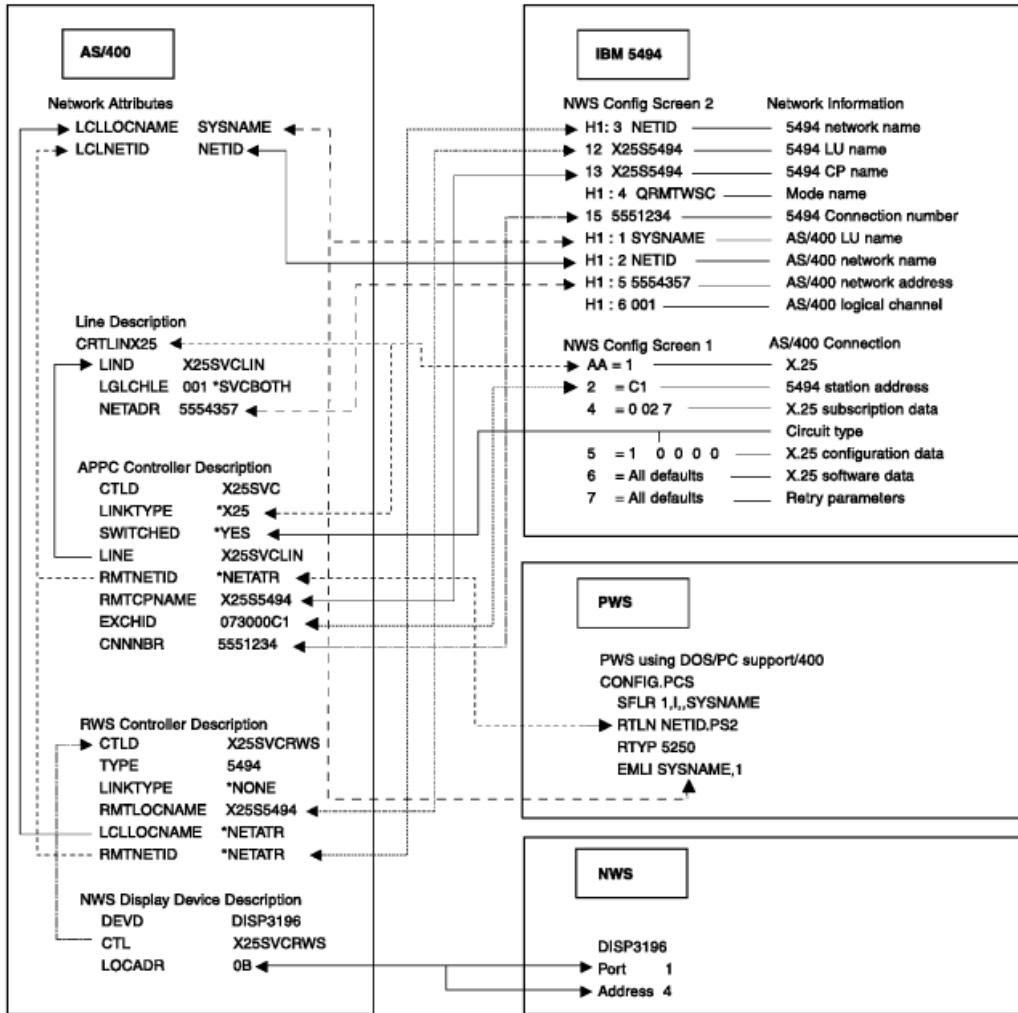
F1	Retry counter	16	<u>10</u>
F2	Retry interval	16	<u>6</u>
F3	Continuous retry	16	<u>No</u>
G	5494 identification		
G1	Serial number	17	<u>97-38216</u>
G2	System password	18	<u>PWXP13</u>
G3	ID number	19	<u>*</u>
H	Primary AS/400 System	20	<u>1</u>
I	Concurrent host information		
I1	Concurrent host attachment	21	<u>No</u>
I2	Printer timeout	22	_____
J	AS/400 time/date synchronization	23	<u>No</u>

AS/400 System Information (Required for primary AS/400 system):

	AS/400 System 1 (H1)	AS/400 System 2 (H2)
K	H1:1 <u>SYSNAME</u>	H2:1 _____
L	H1:2 <u>NETID</u>	H2:2 _____
M	H1:3 <u>NETID</u>	H2:3 _____
N	H1:4 <u>QRMTWSC</u>	H2:4 _____
O	H1:5 <u>5554357</u>	H2:5 _____
P	Controller Session Parameters	
P1	Initiation	H2:11 _____
P2	Disconnect Request	H2:11 _____
	AS/400 System 3 (H3)	AS/400 System 4 (H4)
K	H3:1 _____	H4:1 _____
L	H3:2 _____	H4:2 _____
M	H3:3 _____	H4:3 _____
N	H3:4 _____	H4:4 _____
O	H3:5 _____	H4:5 _____
P	Controller Session Parameters	
P1	Initiation	H4:11 _____
P2	Disconnect Request	H4:11 _____
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation.		

AS/400 Communication Worksheet--X.25	
5494 location	<u>Tokyo</u>
Fill in the blank or circle/underline the appropriate choice:	
A 5494 station address (01 - FE)	<u>C1</u>
B Packet level sequence numbering (<u>modulo 8</u> or modulo 128)	
C Packet window size (2 - 15)	<u>2</u>
D Link window size (1 - 7)	<u>2</u>
E Packet size (64 bytes, <u>128 bytes</u> , 256 bytes, 512 bytes, or 1024 bytes)	
F Circuit type (PVC only, SVC answer only, <u>all others</u>)	
G Flow control negotiation allowed (<u>No</u> or Yes)	
H Manual options allowed (<u>No</u> or Yes)	
I Local loopback supported (<u>No</u> or Yes)	
J Reverse charging accepted (<u>No</u> or Yes)	
K Logical link control (<u>QLLC</u> or ELLC)	
L Telenet <u>(*)</u> -type network attachment (<u>No</u> or Yes)	
M Link initiation (<u>network or 5494</u> ; or network only)	
N Network subscription (<u>CCITT 1988</u> , CCITT 1984, or CCITT 1980)	
O Diagnostic code format (<u>1984/1988 SNA</u> , 1984/1988 ISO, or 1980 SNA)	
P Retry parameters:	
P1 Number of retries (0 - 255, 10)	<u>10</u>
P2 Seconds between retries (1 - 60, 3)	<u>3</u>
Q Logical channel (optional):	
H1 AS/400 system 1 (001 - FFF)	<u>001</u>
H2 AS/400 system 2 (001 - FFF)	<u>025</u>
H3 AS/400 system 3 (001 - FFF)	<u>03D</u>
H4 AS/400 system 4 (001 - FFF)	<u>040</u>
R Token-Ring Gateway support:	
R1 Are you using token-ring to attach workstations? (<u>No</u> or Yes)	
R2 What is your token-ring speed? (4 Mbps or 16 Mbps)	
S Ethernet Gateway support:	
S1 Are you using Ethernet to attach workstations? (<u>No</u> or Yes)	
S2 What is your Ethernet media type? (10BASE-T, 10BASE2, or 10BASE5)	
S3 What is your Ethernet frame format? (IEEE 802.3 or DIX Version 2.0)	
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.	

C.8.3 X.25 SVC Matching Parameters



C.8.4 5494 Configuration

The 5494 configuration values are as follows:

5494 Parameter	5494 Configuration Worksheet Field	NWS Field Name	Value	AS/400 Parameter Keyword
Station address	A (1)	2	C1	
Packet level sequence number	B (1)	4	modulo 8 (0)	MODULUS
Packet window size	C (1)	4	02	DFTWDWSIZE
Link window size	D (1)	4	7	
Packet size	E (1)	5	128 bytes (1)	DFTPCKTSIZE
Circuit type	F (1)	5	all others (0)	LGLCHLE
Logical link control	K (1)	6	QLLC	LINKPCL

Network subscription	O (1)	6	1988	NETLVL
5494 LU name	B (2)	12	X25S5494	RMTLOCNAME
5494 CP name	C (2)	13	X25S5494	RMTCPNAME
5494 connection number	E (2)	15	5551234	CNNNBR
5494 ID number	G3 (2)	19	*	EXCHID
H1 AS/400 system 1				
AS/400 LU name	J (2)	H1:1	SYSNAME	LCLLOCNAME
AS/400 network ID	K (2)	H1:2	NETID	LCLNETID
5494 network ID	L (2)	H1:3	NETID	RMTNETID
Mode name	M (2)	H1:4	QRMTWSC	MODD
AS/400 connection number	N (2)	H1:5	5554357	NETADR
Logical channel number	Q (1)	H1:6	001	LGLCHLE

Notes:

1. See "[AS/400 Communication Worksheet--X.25](#)" in topic 5.7.
2. See "[Network Information Worksheet](#)" in topic 5.3.

C.8.5 AS/400 System Network Attributes

The AS/400 system network attributes are as follows:

AS/400 Parameter	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Current system name		SYSNAME	
Local network ID	LCLNETID	NETID	K (1)
Local control point name	LCLCPNAME	SYSNAME	
Default local location	LCLLOCNAME	SYSNAME	J (1)

Note:

1. See "[Network Information Worksheet](#)" in topic 5.3.

Type **DSPNETA** to display AS/400 system network attributes.

C.8.6 AS/400 System Line Description

The AS/400 system line description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Line description	LIND	X25VCLIN	
Physical interface	INTERFACE	*RS232V24	
Connection type	CNN	*NONSWTPP	
Logical channel entries	LGLCHLE	001 *SVCBOTH	Q F (1)
Local network address	NETADR	5554357	N (2)
X.25 DCE support	X25DCE	*NO	
Exchange identifier	EXCHID	*SYSGEN	
Default packet size	DFTPKTSIZE	128 *TRANSMIT	E (1)
Modulus	MODULUS	8	B (1)
Default window size	DFTWDWSIZE	2 *TRANSMIT	

Notes:

1. See "[AS/400 Communication Worksheet--X.25](#)" in topic 5.7.
2. See "[Network Information Worksheet](#)" in topic 5.3.

Type **CRTLNX25** to create AS/400 system line descriptions.

Type **WRKCFGSTS *LIN** to display AS/400 system line descriptions.

Type **WRKHDWPRD** to determine the location of the AS/400 system line or hardware.

C.8.7 AS/400 System APPC Controller Description

The AS/400 system APPC controller description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Controller description	CTLD	X25SVC	
Switched connection	SWITCHED	*YES	

Maximum frame size	MAXFRAME	1033	
Connection number	CNNNBR	5551234	E (1)
Remote network identifier	RMTNETID	*NETATTR	L (1)
Remote control point	RMTCPNAME	X25S5494	C (1)
Exchange identifier	EXCHID	073000C1	A (2) , G3 (3)
Station address	STNADR	C1	A (2)
APPN-capable	APPN	*YES	
APPN node type	NODETYPE	*LENNODE	
X.25 network level	NETLVL	1988	N (2)
X.25 link level protocol	LINKCPL	*QLLC	K (2)

Notes:

1. See "[Network Information Worksheet](#)" in topic [5.3](#).
2. See "[AS/400 Communication Worksheet--X.25](#)" in topic [5.7](#).
3. With field G3 set to *, the format for the EXCHID parameter is 073000xx, where X'073' is the block number assigned to the 5494 and xx is the station address from the "[AS/400 Communication Worksheet--X.25](#)" in topic [5.7](#).

Type **CRTCTLAPPC** to create AS/400 system APPC controller descriptions.

Type **WRKCFGSTS *CTL** to display AS/400 system APPC controller descriptions.

C.8.8 AS/400 System Mode Description

The AS/400 system mode description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Mode description	MODD	QRMTWSC (1)	M (2)
Notes:			
<ol style="list-style-type: none"> 1. The mode name QRMTWSC is IBM-supplied. 2. See "Network Information Worksheet" in topic 5.3. 			

Type **DSPMODD** to display the mode name on your AS/400 system.

C.8.9 AS/400 System Remote Workstation Controller Description

The AS/400 system remote workstation controller description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Controller description	CTLD	X25SVCRWS	
Controller type	TYPE	5494	
Controller model	MODEL	1 (2)	
Link type	LINKTYPE	*NONE	
Remote location	RMTLOCNAME	X25S5494	B (1)
Local location	LCLLOCNAME	*NETATR	J (1)
Remote network identifier	RMTNETID	*NETATR	L (1)

Notes:

1. See "[Network Information Worksheet](#)" in topic [5.3](#).
2. Select 2 if your 5494 contains a 5494 LAN adapter. Otherwise, select 1.

Type **CRTCTRLRWS** to create AS/400 system remote workstation controller descriptions.

Type **WRKCFGSTS *CTL** to display AS/400 system remote workstation controller descriptions.

Note: In this example, the **5494 remote location name** and the **5494 remote control point** are the same. If the names had been chosen such that they were different, an entry in the Remote Configuration List to correlate the remote location name and the remote control point would be necessary. These names must correlate in order to associate the APPC controller with an RWS controller.

C.8.10 AS/400 System Device Description for Displays Attached to the 5494

The AS/400 system device descriptions for displays attached to the 5494 are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value
Device description	DEVD	DISP3196
Device class	DEVCLS	*RMT

Device type	TYPE	3196
Local location address	LOCADR	0B(1)
Attached controller	CTL	X25SVCRWS
Note:		
(1) To determine the local location address, see Table 9 in topic 3.8.1 .		

Type **CRTDEVDSP** to create AS/400 system device descriptions for displays attached to the 5494.

Type **WRKCFGSTS *DEV** to display AS/400 system device descriptions for displays attached to the 5494.

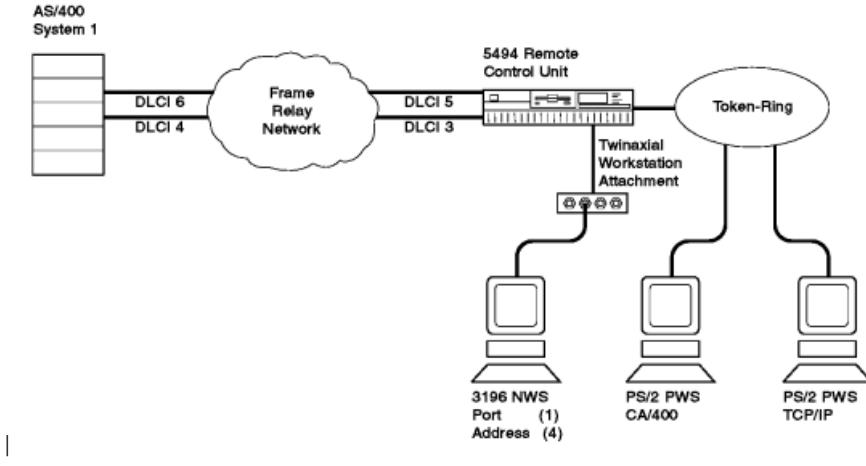
C.8.11 Programmable Workstation Using DOS PC Support/400

The PS/2 computer configuration file contents are as follows:

File Contents	AS/400 Parameter Keyword
SFLR 1,I,,SYSNAME	LCLLOCNAME
RTLN NETID.PS2	
RTYP 5250	
EMLI SYSNAME, 1	LCLLOCNAME

| C.9 AS/400 System Connection Using a Frame Relay Network and FR-TR Bridge

The following example describes an AS/400 system connection to the 5494 through a frame relay network including a frame relay token-ring bridge.



This example includes sample completed worksheets, a matching parameters diagram, and tables that show the configuration parameters for the following items:

- The 5494
- AS/400 system network attributes
- Network interface description
- Line description
- APPC controller description
- Mode description
- Remote workstation controller description
- Display device description
- The PWS.

Refer to [Topic 5, "Preparing the Configuration Worksheets,"](#) for descriptions of the worksheet fields. In the tables of configuration parameters, the values given in the column headed "5494 Configuration Worksheet Field" refer to a field on one of the worksheets.

Only those parameters that are relevant to the connection between the 5494 and the AS/400 system are included. Refer to your AS/400 system documentation for a complete list of configuration parameters.

The values shown for the parameters in this example are not necessarily the only acceptable values. Due to network and other considerations that depend on your environment, the values for your configuration can be different from those presented in this example.

| **Note:** See the ["Token-Ring Gateway Worksheet"](#) in topic C.3.3 for an
| example of a completed worksheet.

Subtopics:

- [C.9.1 Network Information Worksheet](#)
- [C.9.2 AS/400 Communication Worksheet--Frame Relay](#)
- [C.9.3 Frame Relay Token-Ring Bridge Worksheet](#)
- [C.9.4 Frame Relay Network Matching Parameters](#)
- [C.9.5 5494 Configuration](#)
- [C.9.6 AS/400 System Network Attributes](#)
- [C.9.7 AS/400 Network Interface Description](#)

- [C.9.8 AS/400 System Line Description](#)
 - [C.9.9 AS/400 System APPC Controller Description](#)
 - [C.9.10 AS/400 System Mode Description](#)
 - [C.9.11 AS/400 System Remote Workstation Controller Description](#)
 - [C.9.12 AS/400 System Device Description for Displays Attached to the 5494](#)
 - [C.9.13 Programmable Workstation Using DOS Client Access/400](#)
 - [C.9.14 Programmable Workstation Using TCP/IP](#)
-

C.9.1 Network Information Worksheet

Network Information Worksheet	
5494 location	<u>New York</u>
	NWS Field Name
A Default network ID	11 <u>NETID</u>
B 5494 logical unit (LU) name	12 <u>FR5494CP</u>
C 5494 control point (CP) name	13 <u>FR5494CP</u>
D Default mode name	14 <u>ORMTWSC</u>
E 5494 connection number	15 _____
F Logical connection retry parameters	
F1 Retry counter	16 <u>10</u>
F2 Retry interval	16 <u>6</u>
F3 Continuous retry	16 <u>Yes</u>
G 5494 identification	
G1 Serial number	17 <u>12-34567</u>
G2 System password	18 <u>SYS003</u>
G3 ID number	19 <u>*</u>
H Primary AS/400 System	20 <u>1</u>
I Concurrent host information	
I1 Concurrent host attachment	21 <u>No</u>
I2 Printer timeout	22 _____
J AS/400 time/date synchronization	23 <u>No</u>

AS/400 System Information (Required for primary AS/400 system):		
	AS/400 System 1 (H1)	AS/400 System 2 (H2)
K AS/400 LU name	H1:1 <u>SYSNAME</u>	H2:1 _____
L AS/400 network ID	H1:2 <u>NETID</u>	H2:2 _____
M 5494 network ID	H1:3 <u>NETID</u>	H2:3 _____
N Mode name	H1:4 <u>ORMTWSC</u>	H2:4 _____
O Connection number	H1:5 _____	H2:5 _____
P Controller Session Parameters		

Send the completed worksheet to the person who will configure the 5494 to ensure correct operation.

C.9.2 AS/400 Communication Worksheet--Frame Relay

AS/400 Communication Worksheet--Frame Relay			
5494 location <u>New York</u>			
Fill in the blank or circle/underline the appropriate choice.			
		NWS Field Name	
A	Line and modem or DCE configuration	3	
A1	Line type (leased)		
A2	Line facility (full-duplex)		
A3	Connection type (point-to-point)		
A4	Data encoding (NRZI , <u>NRZ</u>)		
A5	Connection method (DTR)		
A6	Send leading pad (No)		
A7	Local loopback support (No)		
B	Frame-relay network information exchange		
B1	Polling Interval (T391) (5-30, 10)	4	<u>10</u>
B2	Full Inquiry Interval (N391) (1-255, 6)	5	<u>6</u>
C	Frame Relay LMI Mode	6	<u>ANSI ANNEX D</u>
D	5494 Information		
D1	5494 SAP (04-FC)	F	<u>04</u>
D2	Response Timer (T1), (1-20)	G	<u>1</u>
D3	Inactivity Timer (Ti), (1-99, 30)	H	<u>30</u>
D4	Receiver Acknowledgment Timer (T2) (1-255, 30)	I	<u>30</u>
D5	Retry Count (N2) (1-99, 8)	J	<u>8</u>
E	Information for the primary AS/400 system is required.		
		AS/400 System 1 (H1)	AS/400 System 2 (H2)

E1 DLCI (1-1023)	H1:6 <u>3</u>	H2:6
E2 AS/400 System SAP (04-FC)	H1:7 <u>04</u>	H2:7
E3 Maximum Out (TW) (2-8)	H1:8 <u>2</u>	H2:8
E4 Maximum In (N3) (1-4)	H1:9 <u>1</u>	H2:9
	AS/400 System 3 (H3)	AS/400 System 4 (H4)
E1 DLCI (1-1023)	H3:6	H4:6
E2 AS/400 System SAP (04-FC)	H3:7	H4:7
E3 Maximum Out (TW) (2-8)	H3:8	H4:8
E4 Maximum In (N3) (1-4)	H3:9	H4:9
F Token-Ring Gateway Support		
F1 Are you using Token-Ring Gateway to attach workstations? (<u>Yes</u> or No)		
F2 What is your Token-Ring speed? (<u>4 Mbps</u> or 16 Mbps)		
G Ethernet Gateway Support		
G1 Are you using Ethernet Gateway to attach workstations? (Yes or No)		
G2 What is your Ethernet media type? (10BASE-T, 10BASE2, or 10BASE5)		
G3 What is your Ethernet frame format? (IEEE 802.3 or DIX Version 2.0)		
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.		

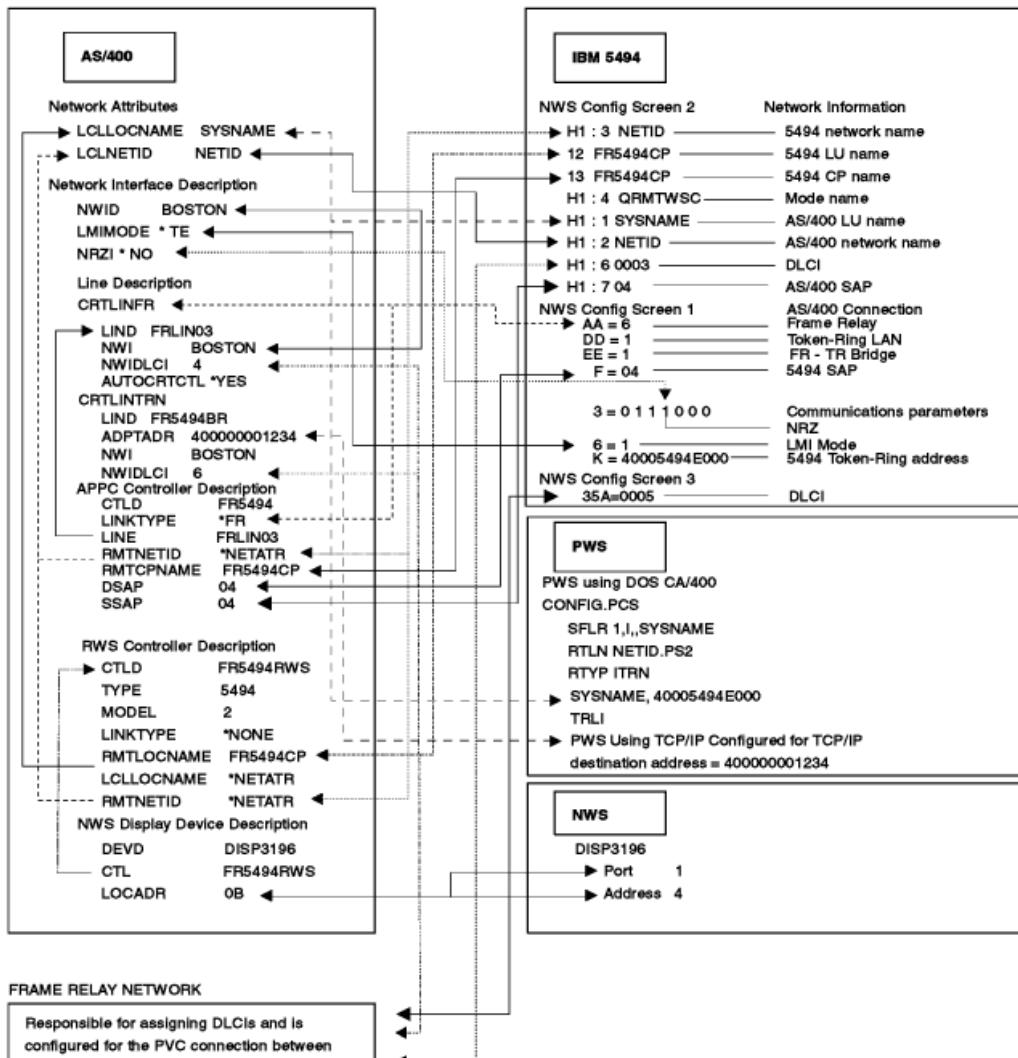
I C.9.3 Frame Relay Token-Ring Bridge Worksheet

Frame Relay Token-Ring Bridge Worksheet		
5494 location _____		
Fill in the blank or circle/underline the appropriate choice.		NWS Field Name
A	LAN ring number (X'001' - X'FFF')	30 <u>001</u>
B	LAN ring speed (9600 - 1600000, <u>4000000</u>)	31 <u>4000000</u>
C	Frame Relay Virtual Ring Number (X'001' - X'FFF')	32 <u>002</u>
D	Frame Relay line speed (9600 - 128000)	33 <u>56000</u>
E	Frame Relay Virtual LAN MAC Address (X'400000000000' - X'4FFFFFFFFF')	34 <u>400012345678</u>
F	Frame Relay DLCI(s) (1-1023) (One is required)	35a <u>0005</u> 35b _____ 35c _____ 35d _____
G	5494 Bridge Number (0-15, 1)	36 <u>1</u>
H	5494 Bridge Priority (X'0001' - X'FFFF')	37 <u>FFFF</u>
I	Maximum Age BPDU in seconds (6-40, <u>20</u>)	38 <u>20</u>
J	Time period between BPDUs in seconds (1-10, <u>2</u>)	39 <u>2</u>

K	Enable Automatic Spanning Tree (Yes, No)	40	No
L	Spanning Tree Explorer Frames (Forward, Drop) LAN Port: Frame Relay Port:	41a	<u>Forward</u>
M	Hop Count (01-07) 7 LAN Port: Frame Relay Port:	42a	<u>07</u>

Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.

C.9.4 Frame Relay Network Matching Parameters



C.9.5 5494 Configuration

The 5494 configuration values are as follows:

5494 Parameter	5494 Configuration Worksheet Field (1)	NWS Field Name	Value	AS/400 Parameter Keyword
Data Encoding	A4	3	1 (NRZ)	NRZI
LMI Mode	C	6	1 (ANSI ANNEX D)	LMI Mode
5494 LU name	B	12	FR5494CP	RMTLOCNAME
5494 CP name	C	13	FR5494CP	RMTCPNAME
5494 SAP	D1	F	04	DSAP
5494 ID number	G3	19	*	EXCHID
H1 AS/400 system 1				
AS/400 LU name	J	H1:1	SYSNAME	LCLLOCNAME
AS/400 network ID	K	H1:2	NETID	LCLNETID
5494 network ID	L	H1:3	NETID	RMTNETID
Mode name	M	H1:4	QRMTWSC	MODD
DLCI	E1	H1:6	0003	See Note
AS/400 SAP	E2	H1:7	04	SSAP
FR-TR Bridge				
DLCI	F	35A	0005	See Note ³
Notes:				
1. See " Network Information Worksheet " in topic 5.3.				
2. See " AS/400 Communication Worksheet--Token-Ring " in topic 5.9.1.				

C.9.6 AS/400 System Network Attributes

The AS/400 system network attributes are as follows:

AS/400 Parameter	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Current system name		SYSNAME	
Local network ID	LCLNETID	NETID	K (1)
Local control point name	LCLCPNAME	SYSNAME	

Default local location	LCLLOCNAME	SYSNAME	J (1)
Note:			
1. See " Network Information Worksheet " in topic 5.3.			

Type **DSPNETA** to display AS/400 system network attributes.

C.9.7 AS/400 Network Interface Description

The AS/400 network interface description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Network Interface Description	NWID	BOSTON	
Resource Name	RSRCNAME	LIN03	
DLCI Number	DLCI	*NONE	
NRZI Data Encoding	NRZI	*NO	
LMI Mode	LMIMODE	*TE	

Type **CRTNWIFR** to create AS/400 network interface descriptions.

Type **WRKCFGSTS *NWI** to display AS/400 network interface descriptions.

C.9.8 AS/400 System Line Description

The AS/400 system line description parameters are as follows:

Subtopics:

- [C.9.8.1 Frame Relay Line](#)
 - [C.9.8.2 Frame Relay Token-Ring Bridge Line \(Token-Ring\)](#)
-

| C.9.8.1 Frame Relay Line

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Line description	LIND	FRLIN03	
Attached nonswitched NWI	NWI	BOSTON	
DCL Identifier	NWIDCLI	4	
Maximum framesize	MAXFRAME	1590	

- | Type **CRTLINFR** to create the AS/400 system line description for the frame relay line.
-

| C.9.8.2 Frame Relay Token-Ring Bridge Line (Token-Ring)

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Line description	LIND	FR5494BR	
Local Address	ADPTADR	4000000001234	
Attached nonswitched NWI	NWI	BOSTON	
DCL Identifier	NWIDCLI	6	
Maximum framesize	MAXFRAME	1590	

- | Type **CRTLINTRN** to create the AS/400 system line description for the FR-TR bridge line.

Type **WRKCFGSTS *LIN** to display AS/400 system line descriptions.

Type **WRKHDWPRD** to determine the location of the AS/400 system line or hardware.

C.9.9 AS/400 System APPC Controller Description

The AS/400 system APPC controller description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Controller description	CTLD	FR5494	
Link type	LINKTYPE	*FR	
APPN capable	APPN	*YES	
Switched line list	SWLINLST	FRLIN03	
Remote network identifier	RMTNETID	*NETATTR	L (1)
Remote control point	RMTCPNAME	FR5494CP	C (1)
Exchange identifier	EXCHID	07300000	G3 (1) (2)
APPN node type	NODETYPE	*LENNODE	
LAN DSAP	DSAP	04	A1 (3)
LAN SSAP	SSAP	04	H1:1 (3)

Notes:

1. See "[Network Information Worksheet](#)" in topic [5.3](#).
2. With field G3 set to *, the format for the EXCHID parameter is 07300000, where X'073' is the block number assigned to the 5494 and 00000 is used for token ring.
3. See "[AS/400 Communication Worksheet--Token-Ring](#)" in topic [5.9.1](#).

Type **CRTCTLAPPC** to create AS/400 system APPC controller descriptions.

Type **WRKCFGSTS *CTL** to display AS/400 system APPC controller descriptions.

C.9.10 AS/400 System Mode Description

The AS/400 system mode description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Mode description	MODD	QRMTWSC (1)	M (2)
Notes:			
<ol style="list-style-type: none"> 1. The mode name QRMTWSC is IBM-supplied in Version 2 Release 2. 2. See "Network Information Worksheet" in topic 5.3. 			

Type **DSPMODD** to display the mode name on your AS/400 system.

C.9.11 AS/400 System Remote Workstation Controller Description

The AS/400 system remote workstation controller description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Controller description	CTLD	FR5494RWS	
Controller type	TYPE	5494	
Controller model	MODEL	2 (2)	
Link type	LINKTYPE	*NONE	
Remote location	RMTLOCNAME	FR5494CP	B (1)
Local location	LCLLOCNAME	*NETATTR	J (1)
Remote network identifier	RMTNETID	*NETATTR	L (1)

Notes:

1. See "[Network Information Worksheet](#)" in topic [5.3](#).
2. Select 2 if your 5494 contains a 5494 LAN adapter. Otherwise, select 1.

Type **CRTCTRLRWS** to create AS/400 system remote workstation controller descriptions.

Type **WRKCFGSTS *CTL** to display AS/400 system remote workstation controller descriptions.

Note: In this example, the 5494 remote location name and the 5494 remote control point are the same. If the names had been chosen such that they were different, an entry in the Remote Configuration List to correlate the remote location name and the remote control point would be necessary. These names must correlate in order to associate the APPC controller with an RWS controller.

C.9.12 AS/400 System Device Description for Displays Attached to the 5494

The AS/400 system device descriptions for displays attached to the 5494 are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value
Device description	DEVD	DISP3196
Device class	DEVCLS	*RMT
Device type	TYPE	3196
Local location address	LOCADR	0B(1)
Attached controller	CTL	FR5494RWS
Note:		
(1) To determine the local location address, see Table 3-4 on page 3-24.		

Type **CRTDEVDSP** to create AS/400 system device descriptions for displays attached to the 5494.

Type **WRKCFGSTS *DEV** to display AS/400 system device descriptions for displays attached to the 5494.

| C.9.13 Programmable Workstation Using DOS Client Access/400

The PS/2 computer configuration file contents are as follows:

File Contents	AS/400 Parameter Keyword
SFLR 1,I,,SYSNAME	LCLLOCNAME
RTLN NETID.PS2	
RTYP 5250	
EMLI SYSNAME,1	LCLLOCNAME

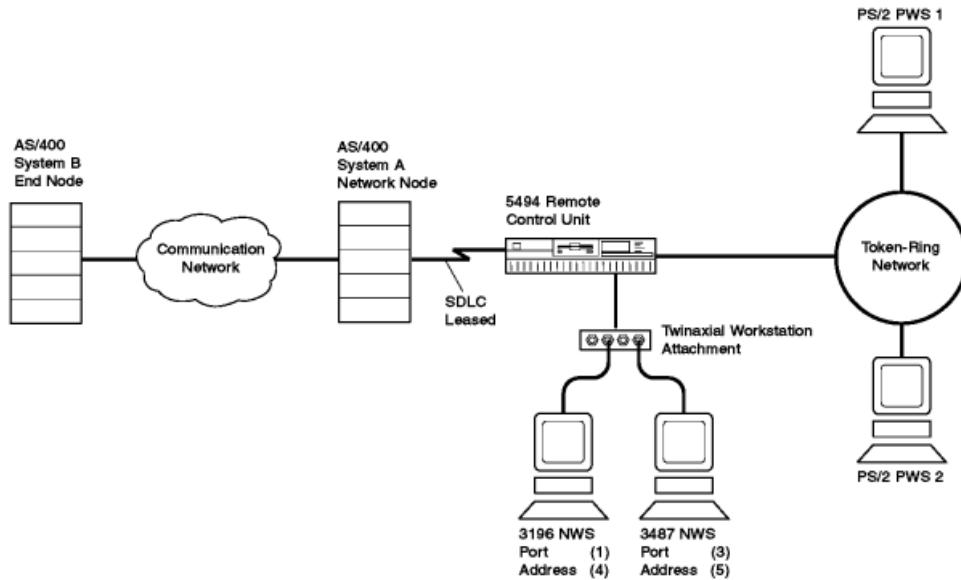
| C.9.14 Programmable Workstation Using TCP/IP

| Make sure your destination address is the token-ring address of the 5494's
| bridge partner.

Value	AS/400 Parameter Keyword
400000001234	ADPTADR

C.10 AS/400 System Connection Using Concurrent Host Attachment through an APPN Network

The following example describes a connection to two AS/400 systems through an APPN Network.



In this example, the 5494 and the 3487 (shared address display) are concurrently attached to AS/400 System A and AS/400 System B. The 3196 can switch between AS/400 system A and AS/400 System B. PWS 1 is in session with AS/400 System A and PWS 2 is in session with AS/400 System B.

This example includes sample completed worksheets, a matching parameters diagram, and tables that show the configuration parameters for the following items:

- The 5494
- AS/400 system network attributes
- Line description
- APPC controller description
- Mode description
- Remote workstation controller description
- Display device description
- The PWS.

Refer to [Topic 5, "Preparing the Configuration Worksheets."](#) for descriptions of the worksheet fields. In the tables of configuration parameters, the values given in the column headed "5494 Configuration Worksheet Field" refer to a field on one of the worksheets.

Only those parameters that are relevant to the connection between the 5494 and the AS/400 system are included. Refer to your AS/400 system documentation for a complete list of configuration parameters.

The values shown for the parameters in this example are not necessarily the only acceptable values. Due to network and other considerations that depend on your environment, the values for your configuration can be different from those presented in this example.

Subtopics:

- [C.10.1 Network Information Worksheet](#)
- [C.10.2 AS/400 Communication Worksheet--SDLC](#)
- [C.10.3 Token-Ring Gateway Worksheet](#)
- [C.10.4 SDLC Leased Line with Token-Ring Gateway through an APPN Network Matching Parameters](#)
- [C.10.5 5494 Configuration](#)
- [C.10.6 AS/400 System A Network Attributes](#)
- [C.10.7 AS/400 System B Network Attributes](#)
- [C.10.8 AS/400 System A Line Description](#)
- [C.10.9 AS/400 System A APPC Controller Description](#)
- [C.10.10 AS/400 Systems A and B Mode Description](#)
- [C.10.11 AS/400 System A Remote Workstation Controller Description](#)
- [C.10.12 AS/400 System B Remote Workstation Controller Description](#)
- [C.10.13 AS/400 System A Device Description for Displays Attached to the 5494](#)
- [C.10.14 AS/400 System B Device Description for Displays Attached to the 5494](#)
- [C.10.15 Programmable Workstation 1 Using DOS PC Support/400](#)
- [C.10.16 Programmable Workstation 2 Using DOS PC Support/400](#)

C.10.1 Network Information Worksheet

Network Information Worksheet	
5494 location	<u>Atlanta</u>
	NWS Field Name
A Default network ID	11 <u>NETID</u>
B 5494 logical unit (LU) name	12 <u>LU5494</u>
C 5494 control point (CP) name	13 <u>LU5494</u>
D Default mode name	14 <u>ORMTWSC</u>
E 5494 connection number	15 _____
F Logical connection retry parameters	
F1 Retry counter	16 <u>10</u>
F2 Retry interval	16 <u>6</u>
F3 Continuous retry	16 <u>Yes</u>
G 5494 identification	
G1 Serial number	17 <u>AA-49021</u>
G2 System password	18 <u>PWXS27</u>
G3 ID number	19 <u>*</u>

H	Primary AS/400 System	20	<u>1</u>
I	Concurrent host information		
I1	Concurrent host attachment	21	<u>Yes</u>
I2	Printer timeout	22	<u>0</u>

J AS/400 time/date synchronization 23 No

AS/400 System Information (Required for primary AS/400 system):

	AS/400 System 1 (H1)	AS/400 System 2 (H2)
K	H1:1 <u>SYSNAMEA</u>	H2:1 <u>SYSNAMEB</u>
L	H1:2 <u>NETIDA</u>	H2:2 <u>NETIDB</u>
M	H1:3 <u>NETIDA</u>	H2:3 <u>NETIDA</u>
N	H1:4 <u>QRMTWSC</u>	H2:4 <u>QRMTWSC</u>
O	H1:5 _____	H2:5 _____
P	Controller Session Parameters	
P1	Initiation H1:11 <u>Yes</u>	H2:11 <u>Yes</u>
P2	Disconnect Request H1:11 <u>Ignore</u>	H2:11 <u>Ignore</u>

	AS/400 System 3 (H3)	AS/400 System 4 (H4)
K	H3:1 _____	H4:1 _____
L	H3:2 _____	H4:2 _____
M	H3:3 _____	H4:3 _____
N	H3:4 _____	H4:4 _____
O	H3:5 _____	H4:5 _____
P	Controller Session Parameters	
P1	Initiation H3:11 _____	H4:11 _____
P2	Disconnect Request H3:11 _____	H4:11 _____

Send the completed worksheet to the person who will configure the 5494 to ensure correct operation.

C.10.2 AS/400 Communication Worksheet--SDLC

AS/400 Communication Worksheet--SDLC	
5494 location	<u>Atlanta</u>
Fill in the blank or circle/underline the appropriate choice:	
A	5494 SDLC station address (01 - FE) <u>01</u>
B	Line and modem or DCE configuration information:
B1	Line type (<u>leased</u> , switched, or switched/V.25 bis)
B2	Line facility (<u>half-duplex</u> or <u>full-duplex</u>)

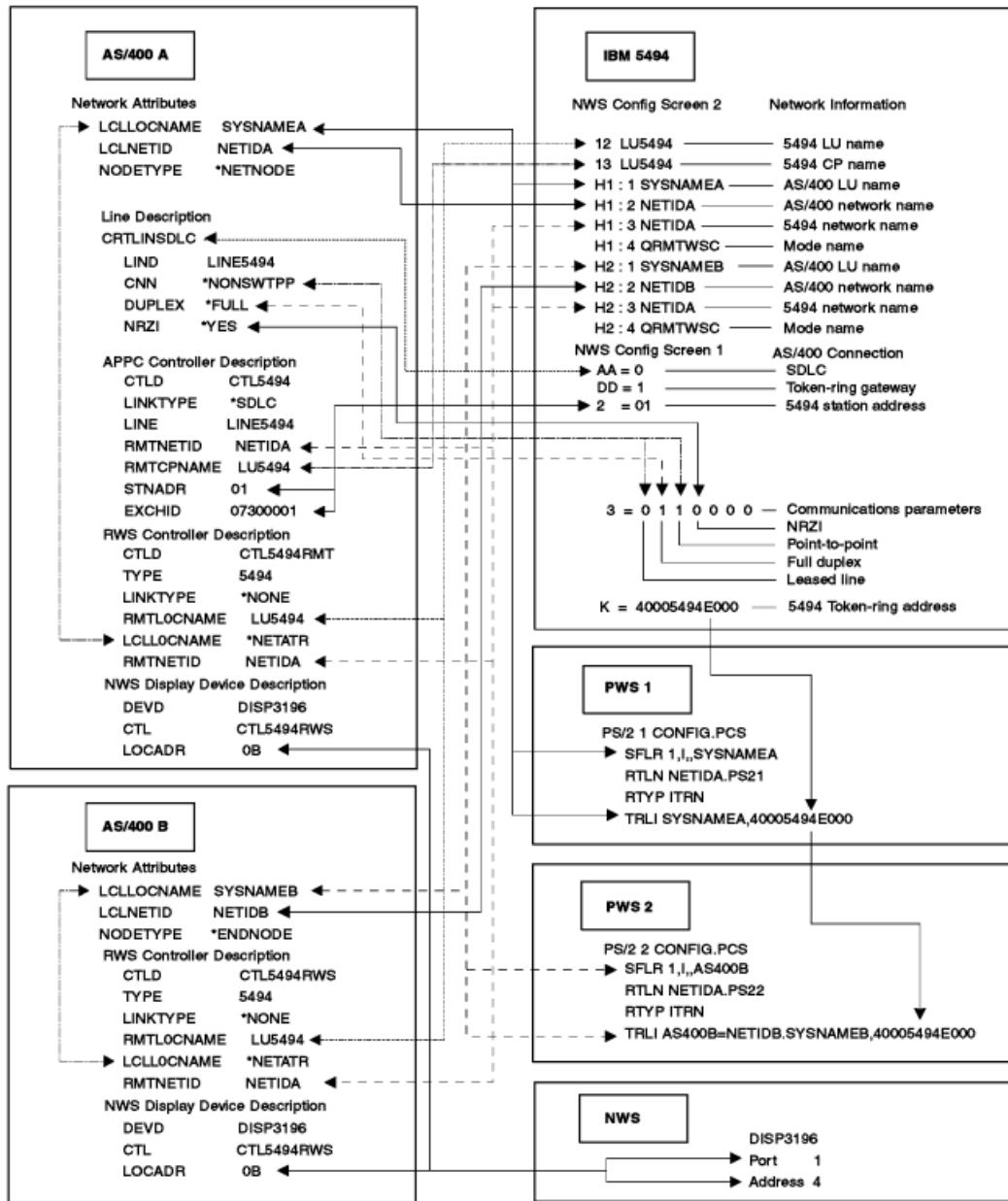
B3 Connection type (multipoint or point-to-point)
B4 Data encoding (NRZI or NRZ)
B5 Connection method (DTR or CDSTL)
B6 Send leading pad (No or Yes)
B7 Local loopback support (No or Yes)
C V.25 bis auto-dial connection time-out in seconds (1 - 255, 60) _____
D Token-Ring Gateway support:
D1 Are you using token-ring to attach workstations? (No or Yes)
D2 What is your token-ring speed? (4 Mbps or 16 Mbps)
E Ethernet Gateway support:
E1 Are you using Ethernet to attach workstations? (No or Yes)
E2 What is your Ethernet media type? (10BASE-T, 10BASE2, or 10BASE5)
E3 What is your Ethernet frame format? (IEEE 802.3 or DIX Version 2.0)

Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.

C.10.3 Token-Ring Gateway Worksheet

Token-Ring Gateway Worksheet	
5494 location	<u>Atlanta</u>
Fill in the blank or circle/underline the appropriate choice.	
A 5494 Token-Ring address (or permanent address) B 5494 SAP (<u>04</u> - FC) C Response timer (T1) (1 - 20) D Inactivity timer (Ti) (1 - 99, <u>30</u>) E Receiver acknowledgment timer (T2) (1 - 255, <u>30</u>) F Retry count (N2) (1 - 99, <u>8</u>) G Maximum out (TW) (<u>2</u> - 8) H Maximum in (N3) (1 - 4)	NWS Field Name K <u>40005494E000</u> L <u>04</u> M <u>1</u> N <u>30</u> O <u>30</u> P <u>8</u> R <u>2</u> S <u>1</u>
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.	

C.10.4 SDLC Leased Line with Token-Ring Gateway through an APPN Network Matching Parameters



Note: The 3487 is not shown in this diagram.

C.10.5 5494 Configuration

The 5494 configuration values are as follows:

5494 Parameter	5494 Configuration Worksheet Field	NWS Field Name	Value	AS/400 Parameter Keyword
Communication mode	title of worksheet	AA	SDLC (0)	CRTLINS DLC
Token-Ring Gateway support	D1 (1)	DD	Token-Ring (1)	N/A

station address	A (1)	2	01	STNADR
Line type	B1 (1)	3	leased line (0)	CNN
Line facility	B2 (1)	3	full-duplex (1)	DUPLEX
Connection type	B3 (1)	3	point-to-point (1)	CNN
Data encoding	B4 (1)	3	NRZI (0)	NRZI
5494 LU name	B (2)	12	LU5494	RMTLOCNAME(3)
5494 CP name	C (2)	13	LU5494	RMTCPNAME
5494 ID number	G3 (2)	19	*	EXCHID
Primary AS/400 System	H	20	1	
Concurrent Host Attachment	I1	21	Yes (1)	
Printer Timeout	I2	22	Disabled (0)	
H1 AS/400 System 1 AS/400 LU name AS/400 network ID 5494 network ID Mode name	J (2) K (2) L (2) M (2)	H1:1 H1:2 H1:3 H1:4	SYSNAMEA NETIDA NETIDA QRMTWSC	LCLLOCNAME(3) LCLNETID(3) RMTNETID(3) MODD(4)
H2 AS/400 System 2 AS/400 LU name AS/400 network ID 5494 network ID Mode name	J (2) K (2) L (2) M (2)	H2:1 H2:2 H2:3 H2:4	SYSNAMEB NETIDB NETIDA QRMTWSC	LCLLOCNAME(3) LCLNETID(3) RMTNETID(3) MODD(4)

Notes:

1. See "[AS/400 Communication Worksheet--SDLC](#)," in topic [5.4](#).
2. See "[Network Information Worksheet](#)" in topic [5.3](#).
3. These parameters are found on the target AS/400.
4. The mode exists on all AS/400s through which the connection exists.

C.10.6 AS/400 System A Network Attributes

The AS/400 system A network attributes are as follows:

AS/400 Parameter	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Current system name		SYSNAMEA	
Local network ID	LCLNETID	NETIDA	(1)
Local control point name	LCLCPNAME	SYSNAMEA	
Default local location	LCLLOCNAME	SYSNAMEA	
Node type	NODETYPE	*NETNODE	
Note:			

1. See "[Network Information Worksheet](#)" in topic 5.3.

Type **DSPNETA** to display AS/400 system network attributes.

C.10.7 AS/400 System B Network Attributes

The AS/400 system B network attributes are as follows:

AS/400 Parameter	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Current system name		SYSNAMEB	
Local network ID	LCLNETID	NETIDB	K(1)
Local control point name	LCLCPNAME	SYSNAMEB	
Default local location	LCLLOCNAME	SYSNAMEB	J(1)
Node type	NODETYPE	*ENDNODE	

Note:

1. See "[Network Information Worksheet](#)" in topic 5.3.

Type **DSPNETA** to display AS/400 system network attributes.

C.10.8 AS/400 System A Line Description

The AS/400 system line description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Line description	LIND	LINE5494	
Category of line		*SDLC	
Resource names	RSRCNAME	LIN041	
		*RS232V24	

Physical interface	INTERFACE	(2)		
Connection type	CNN	*NONSWTPP	B1 (1) B3 (1)	
Exchange identifier	EXCHID	*SYSGEN		
NRZI data encoding	NRZI	*YES	B4 (1)	
Maximum controllers	MAXCTL	1	B3 (1)	
Maximum frame size	MAXFRAME	1033		
Duplex	DUPLEX	*FULL	B2 (1)	

Notes:

1. See "[AS/400 Communication Worksheet--SDLC](#)," in topic [5.4](#).
2. If you are using a V.35 physical interface, the value is *V35.

Type **CRTLINSDLC** to create AS/400 system line descriptions.

Type **WRKCFGSTS *LIN** to display AS/400 system line descriptions.

Type **WRKHWDWPRD** to determine the location of the AS/400 system line or hardware.

C.10.9 AS/400 System A APPC Controller Description

The AS/400 system communication controller description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Controller description	CTLD	CTL5494	
Link type	LINKTYPE	*SDLC	
Switched connection	SWITCHED	*NO	
Attached nonswitched line	LINE	LINE5494	
Maximum frame size	MAXFRAME	1033	
Remote network identifier	RMTNETID	*NETADR	L (1)
Remote control point	RMTCPNAME	LU5494	C (1)
Data link role	ROLE	*NEG	
Station address	STNADR	01	A (2)
Exchange identifier	EXCHID	07300001	A (2), G3 (3)
APPN-capable	APPN	*YES	
APPN node type	NODETYPE	*LENNODE	

Notes:

1. See "[Network Information Worksheet](#)" in topic [5.3](#).
2. See "[AS/400 Communication Worksheet--SDLC](#)," in topic [5.4](#).
3. With field G3 set to *, the format for the EXCHID parameter is 073000xx, where X'073' is the block number assigned to the 5494 and xx is the station address from the "[AS/400 Communication Worksheet--SDLC](#)," in topic [5.4](#).

Type **CRTCTLAPPC** to create AS/400 system APPC controller descriptions.

Type **WRKCFGSTS *CTL** to display AS/400 system APPC controller descriptions.

C.10.10 AS/400 Systems A and B Mode Description

The mode used for the 5494 must be defined in the target AS/400 and all AS/400s through which the connection is made. The AS/400 system mode description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Mode description	MODD	QRMTWSC (1)	M (2)

Notes:

1. The mode name QRMTWSC is IBM-supplied.
2. See "[Network Information Worksheet](#)" in topic [5.3](#).

Type **DSPMODD** to display the mode name on your AS/400 system.

C.10.11 AS/400 System A Remote Workstation Controller Description

The AS/400 system remote workstation controller description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Controller description	CTLID	CTL5494RMT	
Controller type	TYPE	5494	
Controller model	MODEL	2 (2)	
Link type	LINKTYPE	*NONE	
Remote location	RMTLOCNAME	LU5494	B (1)
Local location	LCLLOCNAME	SYSNAMEA	J (1)
Remote network identifier	RMTNETID	NETIDA	L (1)
Notes:			
1. See " Network Information Worksheet " in topic 5.3 .			
2. Select 2 if your 5494 contains a 5494 LAN adapter. Otherwise, select 1.			

Type **CRTCTRLRWS** to create AS/400 system remote workstation controller descriptions.

Type **WRKCFGSTS *CTL** to display AS/400 system remote workstation controller descriptions.

C.10.12 AS/400 System B Remote Workstation Controller Description

The AS/400 system remote workstation controller description parameters are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	5494 Configuration Worksheet Field
Controller description	CTLID	CTL5494RWS	
Controller type	TYPE	5494	
Controller model	MODEL	2 (2)	
Link type	LINKTYPE	*NONE	
Remote location	RMTLOCNAME	LU5494	B (1)
Local location	LCLLOCNAME	SYSNAMEB	J (1)
Remote network identifier	RMTNETID	NETIDA	L (1)
Notes:			
1. See " Network Information Worksheet " in topic 5.3 .			
2. Select 2 if your 5494 contains a 5494 LAN adapter. Otherwise, select 1.			

Type **CRTCTLRWS** to create AS/400 system remote workstation controller descriptions.

Type **WRKCFGSTS *CTL** to display AS/400 system remote workstation controller descriptions.

C.10.13 AS/400 System A Device Description for Displays Attached to the 5494

The AS/400 system device descriptions for displays attached to the 5494 are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	Value	Value
Device description	DEVD	DISP3196	DISP34870	DISP3487
Device class	DEVCLS	*RMT	*RMT	*RMT
Device type	TYPE	3196	3487	3487
Shared session number	SHRSSNNBR	N/A	0	1
Attached controller	CTL	CTL5494RM	CTL5494RM	CTL5494R
Local location address	LOCADR	0B (1) (1) (1)		

Note:

1. To determine the local location address, see [Table 9 in topic 3.8.1](#).

Type **CRTDEVDSP** to create AS/400 system device descriptions for displays attached to the 5494.

Type **WRKCFGSTS *DEV** to display AS/400 system

C.10.14 AS/400 System B Device Description for Displays Attached to the 5494

The AS/400 system device descriptions for displays attached to the 5494 are as follows:

AS/400 Field	AS/400 Parameter Keyword	Value	Value	Value
Device description	DEVD	DISP3196	DISP34870	DISP3487
Device class	DEVCLS	*RMT	*RMT	*RMT
Device type	TYPE	3196	3487	3487
Shared session number	SHRSSNNBR	N/A	0	1

Attached controller	CTL	CTL5494RW	CTL5494RW	CTL5494R
Local location address	LOCADR	0B (1) (1) (1)		

Note:

1. To determine the local location address, see [Table 9 in topic 3.8.1](#).

Type **CRTDEVDSP** to create AS/400 system device descriptions for displays attached to the 5494.

Type **WRKCFGSTS *DEV** to display AS/400 system

C.10.15 Programmable Workstation 1 Using DOS PC Support/400

The PS/2 computer configuration file contents are as follows:

File Contents	AS/400 Parameter Keyword
SFLR 1,I,,SYSNAMEA	LCLLOCNAME
RTLN NETIDA.PS21	
RTYP ITRN	
TRLI SYSNAMEA, 40005494E000 (1)	LCLLOCNAME

Note:

1. The destination Token-Ring address in the PS/2 computer configuration is the 5494 Token-Ring address. See ["Token-Ring Gateway Worksheet" in topic C.10.3](#).

C.10.16 Programmable Workstation 2 Using DOS PC Support/400

The PS/2 computer configuration file contents are as follows:

File Contents	AS/400 Parameter Keyword
SFLR 1,I,,AS400B	
RTLN NETIDA.PS22	
RTYP ITRN	

TRLI AS400B=NETIDB.SYSNAMEB, 40005494E000 (1)	LCLLOCNAME
Note:	
1. The destination Token-Ring address in the PS/2 computer configuration is the 5494 Token-Ring address. See " Token-Ring Gateway Worksheet " in topic C.10.3.	

C.11 AS/400 System Connection Using an SDLC Leased Line through an SNA Subarea Network

This example describes the system parameters required to connect an AS/400 system and a 5494 to an IBM 3745 Communication Controller. Values in this example shown in bold are mandatory for correct operation of the 5494. This example assumes the following software levels:

IBM Equipment	Software Level
AS/400 system	OS/400 Version 2 Release 1.1
5494 Remote Control Unit	IBM 5494 Release 3
3745 Communication Controller	NCP Version 5 Release 3
S/370	VTAM Version 3 Release 2
Personal computer (PWS)	DOS and PC Support/400

In this example, both the AS/400 system and the 5494 are attached to the IBM 3745 Communication Controller over a leased line connection. The hardware layout and key configuration parameters are shown in [Figure 34](#).

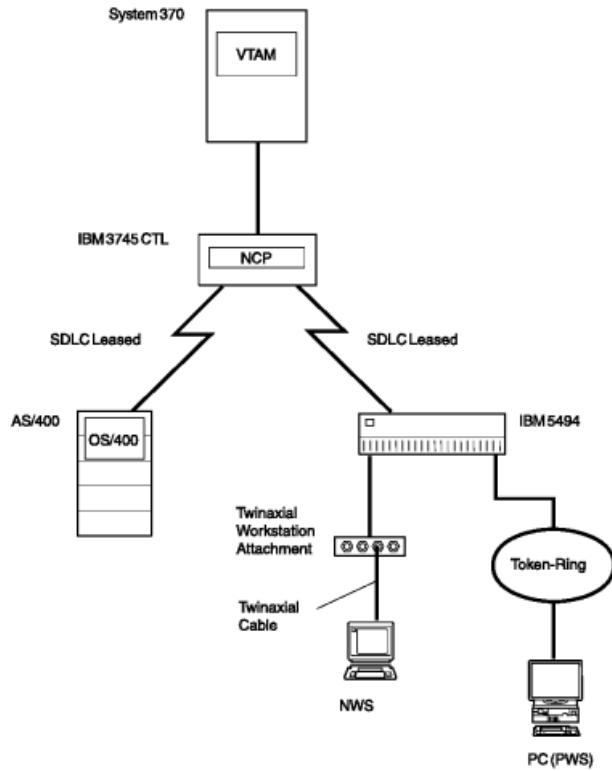


Figure 34. Example of Physical Attachment of an AS/400 System, IBM 3745, and IBM 5494

Subtopics:

- [C.11.1 Network Information Worksheet](#)
- [C.11.2 AS/400 Communication Worksheet--SDLC](#)
- [C.11.3 Token-Ring Gateway Worksheet](#)
- [C.11.4 Token-Ring Matching Parameters](#)
- [C.11.5 3745 System Generation File Entries](#)
- [C.11.6 AS/400 System Configuration](#)

C.11.1 Network Information Worksheet

Network Information Worksheet	
5494 location	<u>Building 65, Room 3-H201</u>
	NWS Field Name
A Default network ID	11 <u>NET5494</u>
B 5494 logical unit (LU) name	12 <u>LU5494</u>
C 5494 control point (CP) name	13 <u>CS100N</u>
D Default mode name	14 <u>B62NBE05</u>

E	5494 connection number	15	_____
F	Logical connection retry parameters		
F1	Retry counter	16	<u>10</u>
F2	Retry interval	16	<u>6</u>
F3	Continuous retry	16	<u>Yes</u>
G	5494 identification		
G1	Serial number	17	<u>12-34567</u>
G2	System password	18	_____
G3	ID number	19	*
H	Primary AS/400 System	20	<u>1</u>
I	Concurrent host information		
I1	Concurrent host attachment	21	<u>No</u>
I2	Printer timeout	22	_____
J	AS/400 time/date synchronization	23	<u>No</u>

AS/400 System Information (Required for the primary AS/400 system):

	AS/400 System 1 (H1)	AS/400 System 2 (H2)
K	H1:1 <u>CPA9406A</u>	H2:1 _____
L	H1:2 <u>STFNET</u>	H2:2 _____
M	H1:3 <u>NET5494</u>	H2:3 _____
N	H1:4 <u>B62NBE05</u>	H2:4 _____
O	H1:5 _____	H2:5 _____
P	Controller Session Parameters	
P1	Initiation	H2:11 _____
P2	Disconnect Request	H2:11 _____

	AS/400 System 3 (H3)	AS/400 System 4 (H4)
K	H3:1 _____	H4:1 _____
L	H3:2 _____	H4:2 _____
M	H3:3 _____	H4:3 _____
N	H3:4 _____	H4:4 _____
O	H3:5 _____	H4:5 _____
P	Controller Session Parameters	
P1	Initiation	H4:11 _____
P2	Disconnect Request	H4:11 _____

Send the completed worksheet to the person who will configure the 5494 to ensure correct operation.

AS/400 Communication Worksheet--SDLC	
5494 location	<u>RTP</u>
Fill in the blank or circle/underline the appropriate choice:	
A 5494 SDLC station address (01 - FE)	<u>01</u>
B Line and modem or DCE configuration information:	
B1 Line type (<u>leased</u> , switched, or switched/V.25 bis)	
B2 Line facility (<u>half-duplex</u> or <u>full-duplex</u>)	
B3 Connection type (<u>multipoint</u> or <u>point-to-point</u>)	
B4 Data encoding (<u>NRZI</u> or NRZ)	
B5 Connection method (<u>DTR</u> or CDSTL)	
B6 Send leading pad (<u>No</u> or Yes)	
B7 Local loopback support (<u>No</u> or Yes)	
C V.25 bis auto-dial connection time-out in seconds (1 - 255, 60)	<u>60</u> <u>N/A</u>
D Token-Ring Gateway support:	
D1 Are you using token-ring to attach workstations? (No or <u>Yes</u>)	
D2 What is your token-ring speed? (4 Mbps or 16 Mbps)	
E Ethernet Gateway support:	
E1 Are you using Ethernet to attach workstations? (<u>No</u> or Yes)	
E2 What is your Ethernet media type? (10BASE-T, 10BASE2, or 10BASE5)	
E3 What is your Ethernet frame format? (IEEE 802.3 or DIX Version 2.0)	
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.	

C.11.3 Token-Ring Gateway Worksheet

Token-Ring Gateway Worksheet	
5494 location	<u>RTP</u>
Fill in the blank or circle/underline the appropriate choice.	
A 5494 Token-Ring address (or permanent address)	K <u>40005494E000</u>
B 5494 SAP (04 - FC)	L <u>04</u>
C Response timer (T1) (1 - 20)	M <u>1</u>
D Inactivity timer (Ti) (1 - 99, 30)	N <u>30</u>
E Receiver acknowledgment timer (T2) (1 - 255, 30)	O <u>30</u>
F Retry count (N2) (1 - 99, 8)	Q <u>8</u>
G Maximum out (TW) (2 - 8)	R <u>2</u>
H Maximum in (N3) (1 - 4)	S <u>1</u>
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.	

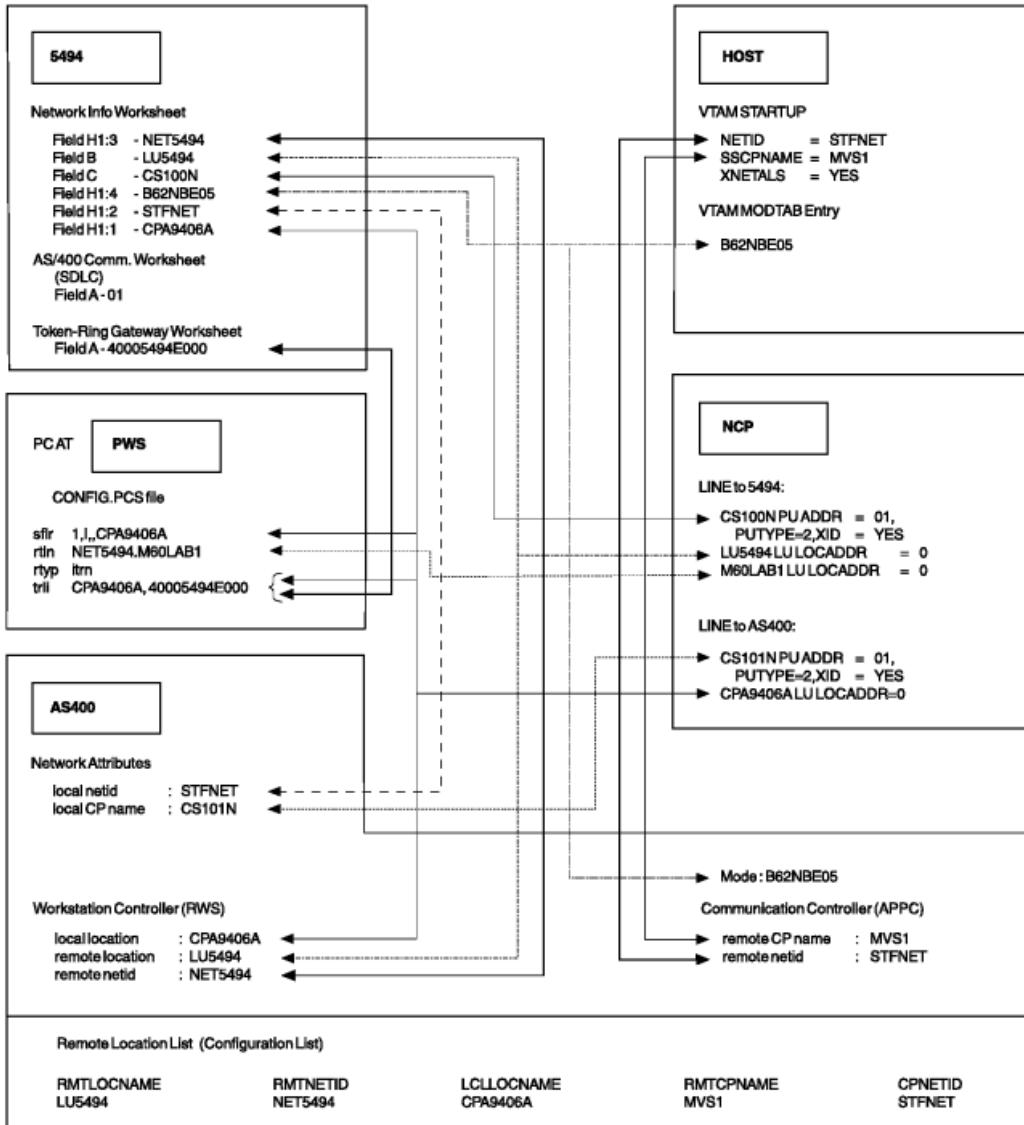
C.11.4 Token-Ring Matching Parameters

In the following example, the 5494 has a different network ID than the AS/400 system, the VTAM, and the NCP.

The PWS is attached to the 5494 using a token-ring gateway.

The following names (network qualified names) are used:

- SSCP name: STFNET.MVS1
- AS/400 LU name: STFNET.CPA9406A
- AS/400 CP name: STFNET.CS101N
- 5494 CP name: NET5494.CS100N
- 5494 LU name: NET5494.LU5494
- PWS (Personal Computer AT [PC AT]) LU name: NET5494.M60LAB1
- PWS Partner (AS/400) LU name CPA9406A.



C.11.5 3745 System Generation File Entries

This section shows 3745 system generation file entries for the NCP and mode table entries.

Subtopics:

- [C.11.5.1 NCP File Entries](#)
- [C.11.5.2 Mode Table Entries](#)
- [C.11.5.3 VTAM Startup Procedure](#)

C.11.5.1 NCP File Entries

```

NCPN1    BUILD  CATRACE=(YES,100),
          AUXADDR=500,
          ADDSESS=500,
          ENABLTO=120,
          LOADLIB=NCPLLOAD,
          MAXSSCP=4,
          MAXSUBA=31,
          MODEL=3745,
          NETID=STFNET,
          NEWNAME=NCPN1,
          NUMHSAS=4,
          OLT=YES,
          PATHEXT=0,
          PRTGEN=NOGEN,
          SLOWDOWN=12,
          SUBAREA=29,
          TGBXTRA=0,
          TRACE=(YES,100),
          TYPGEN=NCP,
          TYPSSYS=MVS,
          USGTIER=5,
          VERSION=V5R3,
          VRPOOL=24

N043     GROUP   DIAL=NO,LNCTL=SDLC,TYPE=NCP,MODETAB=LMT3270,
          ISTATUS=INACTIVE,DUPLEX=FULL,CLOCKNG=EXT,
          MAXDATA=265,MAXOUT=7,PUTYPE=2,PASSLIM=16,PACING=0,
          VPACING=(5,3),RETRIES=(7,4,3),PAUSE=0,RNRRLIMT=20

```

* CONFIGURATION FOR 5494

```

NS100N   LINE    ADDRESS=(100,FULL),CLOCKNG=EXT,DUPLEX=FULL,SPEED=19200
          SPACE
CS100N   PU      ADDR=01,DATMODE=FULL,PUTYPE=2,XID=YES
          SPACE
LU5494   LU      LOCADDR=0,RESSCB=32

```

* CONFIGURATION FOR PC ATTACHED TO THE 5494

```

M60LAB1  LU      LOCADDR=0,RESSCB=32
          SPACE

```

* CONFIGURATION FOR AS/400 SYSTEM

```

NS101N   LINE    ADDRESS=101
          SPACE
CS101N   PU      ADDR=01,ISTATUS=ACTIVE,XID=YES,PUTYPE=2
          SPACE
CPA9406A LU      LOCADDR=0,RESSCB=256
          SPACE

```

C.11.5.2 Mode Table Entries

LMT3270 MODETAB

```

*****
* B62NBE05                               *
*          LU 6.2                           *
*          NO ENCRYPTION                   *
*          INBOUND, OUTBOUND PACING       *
*          EBCDIC, RU=1024                 *
*****
```

```

*      SRCVPAC=4
*****
B62NBE05  MODEENT LOGMODE=B62NBE05,
           FMPROF=X'13',
           TSPROF=X'07',
           PRIPROT=X'B0',
           SECPROT=X'B0',
           COMPROT=X'50A1',
           RUSIZES=X'8787'
           SSNDPAC=X'02',
           ENCR=B'0000'
           PSNDPAC=X'00',
           SRCVPAC=X'04',
           TYPE=0,
           PSERVIC=X'060200000000000000002400'

```

Note: If you use PC Support/400 (DOS version), your mode table must include a mode of QPCSUPP in order to communicate through the SNA network.

C.11.5.3 VTAM Startup Procedure

```

SSCPID=01,NOPROMPT,IOINT=600,
CONFIG=01,LIST=00,MAXSUBA=31,SUPP=NOSUP,
HOSTSA=1,
GWSSCP=NO,
NETID=STFNET,
SSCPNAME=MVS1,
XNETALS=YES,
CRPLBUF=(208,,15,,1,16),
IOBUF=(600,280,19,,33,20),
LFBUF=(104,,0,,1,1),
LPBUF=(64,,0,,1,1),
SFBUF=(163,,0,,1,1),
BSBUF=(300,,,25,60)

```

C.11.6 AS/400 System Configuration

Note: The fields shown in these examples do not necessarily appear on the screen during the CREATE process.

These examples are based on output from the PRINT function of the remote hardware configuration lists, and some fields may appear differently when viewed using the DISPLAY function.

In order to provide input for those fields that do not appear during the basic CREATE process, you must press **F9**-All Fields before completing the CREATE process.

Many of the fields represent the system defaults and may not require operator input.

Most of these fields cannot be changed using the CHANGE function.

Subtopics:

- [C.11.6.1 Communications Line Description](#)

- [C.11.6.2 Communication Controller Description](#)
 - [C.11.6.3 Communication Device Description](#)
 - [C.11.6.4 Mode Description](#)
 - [C.11.6.5 Workstation Controller Description](#)
 - [C.11.6.6 Advanced Peer-to-Peer Networking \(APPN\) Configuration List](#)
-

C.11.6.1 Communications Line Description

Line description	LIND	NCP664
Option	OPTION	*ALL
Category of line		*SDLC
Resource names	RSRCNAME	LIN041
Online at IPL	ONLINE	*NO
Data link role	ROLE	*SEC
Physical interface	INTERFACE	*RS232V24
Connection type.	CNN	*NONSWTPP
Switched network backup	SNBU	*NO
Exchange identifier.	EXCHID	*SYSGEN
NRZI data encoding	NRZI	*YES
Maximum controllers	MAXCTL	1
Clocking	CLOCK	*MODEM
Line speed	LINESPEED	19200
Modem type supported	MODEM	*NORMAL
Modem data rate select	MODEMRATE	*FULL
Autoanswer type	AUTOANTYP	*DTR
Maximum frame size	MAXFRAME	1033
Error threshold level	THRESHOLD	*OFF
Duplex	DUPLEX	*FULL
Modulus	MODULUS	8
Text	TEXT	*BLANK

Attached nonswitched controllers . . CTL

-----Attached Nonswitched Controllers-----

CLT664

Link speed	LINKSPEED	19200
Cost/connect time	COSTCNN	0
Cost/byte	COSTBYTE	0
Security for line	SECURITY	*NONSECURE
Propagation delay	PRPDLY	*TELEPHONE
User-defined 1	USRDFN1	128
User-defined 2	USRDFN2	128
User-defined 3	USRDFN3	128
Maximum outstanding frames	MAXOUT	7
Inactivity timer	INACTTMR	300
Poll response delay	POLLRSPDLY	0
Data Set Ready drop timer	DSRDRPTMR	6
Clear To Send timer	CTSTMR	25
Remote answer timer	RMTANSTM	60
Recovery limits	CMNRCYLM	
Count limit		2
Time interval		5

C.11.6.2 Communication Controller Description

The communication controller description should not be confused with the workstation controller description that is used for the 5494. Configure a HOST controller description if the next node in the network is a System/370 host or configure an APPC controller description if the next node is some other system capable of performing SNA subarea network node support.

```
Controller description . . . . . CTLD      CLT664
Option . . . . . . . . . . . OPTION     *ALL
Category of controller . . . . .       *APPC
```

```
Link Type. . . . . . . . . . . LINKTYPE   *SDLC
Online at IPL . . . . . . . . . ONLINE    *NO
Switched connection . . . . . . . . . SWITCHED *NO
Switched network backup . . . . . SNBU     *NO
Attached Nonswitched Line. . . . . LINE     NCP664
Character code . . . . . . . . . CODE      *EBCDIC
Maximum frame size . . . . . . . . . MAXFRAME 1033
Remote network identifier. . . . . RMTNETID STFNET
Remote control point . . . . . . . . . RMTCPNAME MVS1
Data link role . . . . . . . . . ROLE      *NEG
Station address. . . . . . . . . STNADR    01
Text . . . . . . . . . . . TEXT      *BLANK
```

```
Attached devices . . . . . . . . . DEV
```

```
-----Attached Devices-----
```

LU5494

```
APPN-capable . . . . . . . . . APPN      *YES
APPN CP session support. . . . . CPSSN    *NO
APPN node type . . . . . . . . . NODETYPE *LENNODE
APPN transmission group number . . TMSGPNBR 1
```

```
SDLC poll priority . . . . . . . POLLPTY  *NO
SDLC poll limit . . . . . . . . . POLLMT   0
SDLC out limit . . . . . . . . . OUTLMT   *POLLMT
SDLC connect poll retry . . . . . CNNPOLLRTY *NOMAX
SDLC NDM poll timer . . . . . . . . . NDMPOLLTMR *CALC
Recovery limits . . . . . . . . . CMNRCYLMT
  Count limit . . . . . . . . . . . 2
  Time interval . . . . . . . . . . . 5
```

C.11.6.3 Communication Device Description

Note: This configuration will be generated automatically by the system and should not be entered by the operator.

```
Device description . . . . . . . . . DEVD    LU5494
Option . . . . . . . . . . . OPTION     *ALL
Category of device . . . . . . . . .       *APPC
```

```
Remote location name . . . . . . . . . RMTLOCNAME LU5494
Online at IPL . . . . . . . . . . . ONLINE    *NO
```

Local location	LCLLOCNAME	CPA9406A
Remote network identifier	RMTNETID	*NETATTR
Attached controller.	CTL	CLT664
Message queue	MSGQ	QSYSOPR
Library		*LIBL
Local location address	LOCADR	00
APPN-capable	APPN	*YES
Single session	SNGSSN	
Single session capable		*NO
Text	TEXT	AUTOMATICALLY CREATED BY QLUS

Mode MODE

-----Mode-----

*NETATTR

C.11.6.4 Mode Description

Mode description MODD B62NBE05

Class-of-service	COS	#CONNECT
Maximum sessions	MAXSSN	57
Maximum conversations.	MAXCNV	57
Locally controlled sessions.	LCLCTLSSN	56
Preestablished sessions.	PREESTSSN	0
Inbound pacing value	INPACING	7
Outbound pacing value.	OUTPACING	7
Maximum length of request unit . .	MAXLENRU	*CALC
Text	TEXT	*BLANK

C.11.6.5 Workstation Controller Description

Controller description	CTLD	RTP5494
Option	OPTION	*ALL
Category of controller		*RWS

Controller type.	TYPE	5494
Link type.	LINKTYPE	*NONE
Online at IPL	ONLINE	*NO
Remote location	RMTLOCNAME	LU5494
Local location	LCLLOCNAME	CPA9406A
Remote network identifier	RMTNETID	NET5494
Text	TEXT	*BLANK

Attached devices DEV

-----Attached Devices-----

```

Device wait timer . . . . . DEVWAITTMR 120
Allocation retry timer . . . . . ALCRTYTMR 5
Recovery limits . . . . . CMNRCYLMT
  Count limit . . . . . 2
  Time interval . . . . . 5

```

C.11.6.6 Advanced Peer-to-Peer Networking (APPN) Configuration List

Configuration list:	QAPPNRMT
Configuration list type:	*APPNRMT
Text:	

APPN Remote Locations						
Remote Location	Remote Network ID	Local Location	Remote Control Point	Control Point Net ID	Secure Loc	
LU5494	NET5494	CPA9406A	MVS1	STFNET	*NO	

APPN Remote Locations						
Remote Location	Remote Network ID	Local Location	Single Session	Number of Conversatio	Local Control Point	Pre-establish Session
LU5494	NET5494	CPA9406A	*NO	10	*NO	*NO

APPN Remote Locations						
Remote Location	Remote Network ID	Local Location	Text			
LU5494	NET5494	CPA9406A				

C.12 AS/400 System Connection Using Token-Ring through an SNA Subarea Network

This example describes the system parameters required to connect an AS/400 system and a 5494 to an IBM 3745 Communication Controller. Values in this example shown in bold are mandatory for correct operation of the 5494. This example assumes the following software levels:

IBM Equipment	Software Level
AS/400 system	OS/400 Version 2 Release 1.1
5494 Remote Control Unit	IBM 5494 Release 3.0
3745 Communication Controller	NCP Version 5 Release 3
S/370	VTAM Version 3 Release 2
Personal computer (PWS)	DOS and PC Support/400

In this example, the AS/400 system is attached to the IBM 3745 Communication Controller over a leased line connection and the 5494 is attached to the IBM 3745 through a Token-Ring network. The hardware layout and key configuration parameters are shown in [Figure 35](#).

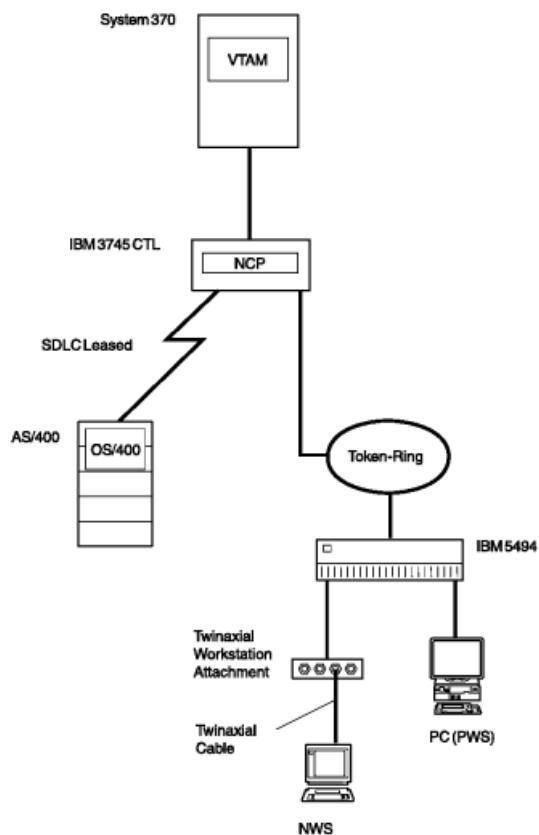


Figure 35. Example of Physical Attachment of an AS/400 System, IBM 3745, and IBM 5494

Subtopics:

- [C.12.1 Network Information Worksheet](#)
- [C.12.2 AS/400 Communication Worksheet--Token Ring](#)
- [C.12.3 Matching Parameters](#)
- [C.12.4 3745 System Generation File Entries](#)
- [C.12.5 AS/400 System Configuration](#)

C.12.1 Network Information Worksheet

Network Information Worksheet		
5494 location <u>Building 64, Room 3-H101</u>		NWS Field Name
A	Default network ID	11 <u>STFNET</u>
B	5494 logical unit (LU) name	12 <u>SWLU002</u>
C	5494 control point (CP) name	13 <u>CS1095F</u>
D	Default mode name	14 <u>B62NBE05</u>
E	5494 connection number	15 <u>400010010025</u>
F	Logical connection retry parameters	
F1	Retry counter	16 <u>10</u>
F2	Retry interval	16 <u>10</u>
F3	Continuous retry	16 <u>No</u>
G	5494 identification	
G1	Serial number	17 <u>AB-12345</u>
G2	System password	18 _____
G3	ID number	19 <u>00000</u>
H	Primary AS/400 System	20 <u>1</u>
I	Concurrent host information	
I1	Concurrent host attachment	21 <u>No</u>
I2	Printer timeout	22 _____
J	AS/400 time/date synchronization	23 <u>No</u>
AS/400 System Information (Required for the primary AS/400 system):		
	AS/400 System 1 (H1)	AS/400 System 2 (H2)
K	AS/400 LU name	H2:1 _____
L	AS/400 network ID	H2:2 _____
M	5494 network ID	H2:3 _____
N	Mode name	H2:4 _____
O	Connection number	H2:5 _____
P	Controller Session Parameters	
P1	Initiation	H2:11 _____
P2	Disconnect Request	H2:11 _____
	AS/400 System 3 (H3)	AS/400 System 4 (H4)

K AS/400 LU name	H3:1 _____	H4:1 _____
L AS/400 network ID	H3:2 _____	H4:2 _____
M 5494 network ID	H3:3 _____	H4:3 _____
N Mode name	H3:4 _____	H4:4 _____
O Connection number	H3:5 _____	H4:5 _____
P Controller Session Parameters		
P1 Initiation	H3:11 _____	H4:11 _____
P2 Disconnect Request	H3:11 _____	H4:11 _____

Send the completed worksheet to the person who will configure the 5494 to ensure correct operation.

C.12.2 AS/400 Communication Worksheet--Token Ring

AS/400 Communication Worksheet--Token Ring		
5494 location <u>Building 64, Room 3-H101</u>		
Fill in the blank or circle/underline the appropriate choice:		
What is your Token-Ring speed? (<u>4 Mbps</u> or 16 Mbps)		
	NWS Field Name	
A 5494 information:		
A1 5494 SAP (04 - FC)	F	<u>04</u>
A2 Response timer (T1) (1 - 20)	G	<u>01</u>
A3 Inactivity timer (Ti) (1 - 99, 30)	H	<u>30</u>
A4 Receiver acknowledgment timer (T2) (1 - 255, 30)	I	<u>30</u>
A5 Retry count (N2) (1 - 99, 8)	J	<u>08</u>
Information required for one AS/400 system.		
H1 AS/400 system 1:		
1 AS/400 system SAP (04 - FC)	H1:7	<u>04</u>
2 Maximum out (TW) (2 - 8)	H1:8	<u>2</u>
3 Maximum in (N3) (1 - 4)	H1:9	<u>1</u>
H2 AS/400 system 2:		
1 AS/400 system SAP (04 - FC)	H2:7	_____
2 Maximum out (TW) (2 - 8)	H2:8	_____
3 Maximum in (N3) (1 - 4)	H2:9	_____
H3 AS/400 system 3:		
1 AS/400 system SAP (04 - FC)	H3:7	_____
2 Maximum out (TW) (2 - 8)	H3:8	_____
3 Maximum in (N3) (1 - 4)	H3:9	_____
H4 AS/400 system 4:		
1 AS/400 system SAP (04 - FC)	H4:7	_____
2 Maximum out (TW) (2 - 8)	H4:8	_____
3 Maximum in (N3) (1 - 4)	H4:9	_____
Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.		

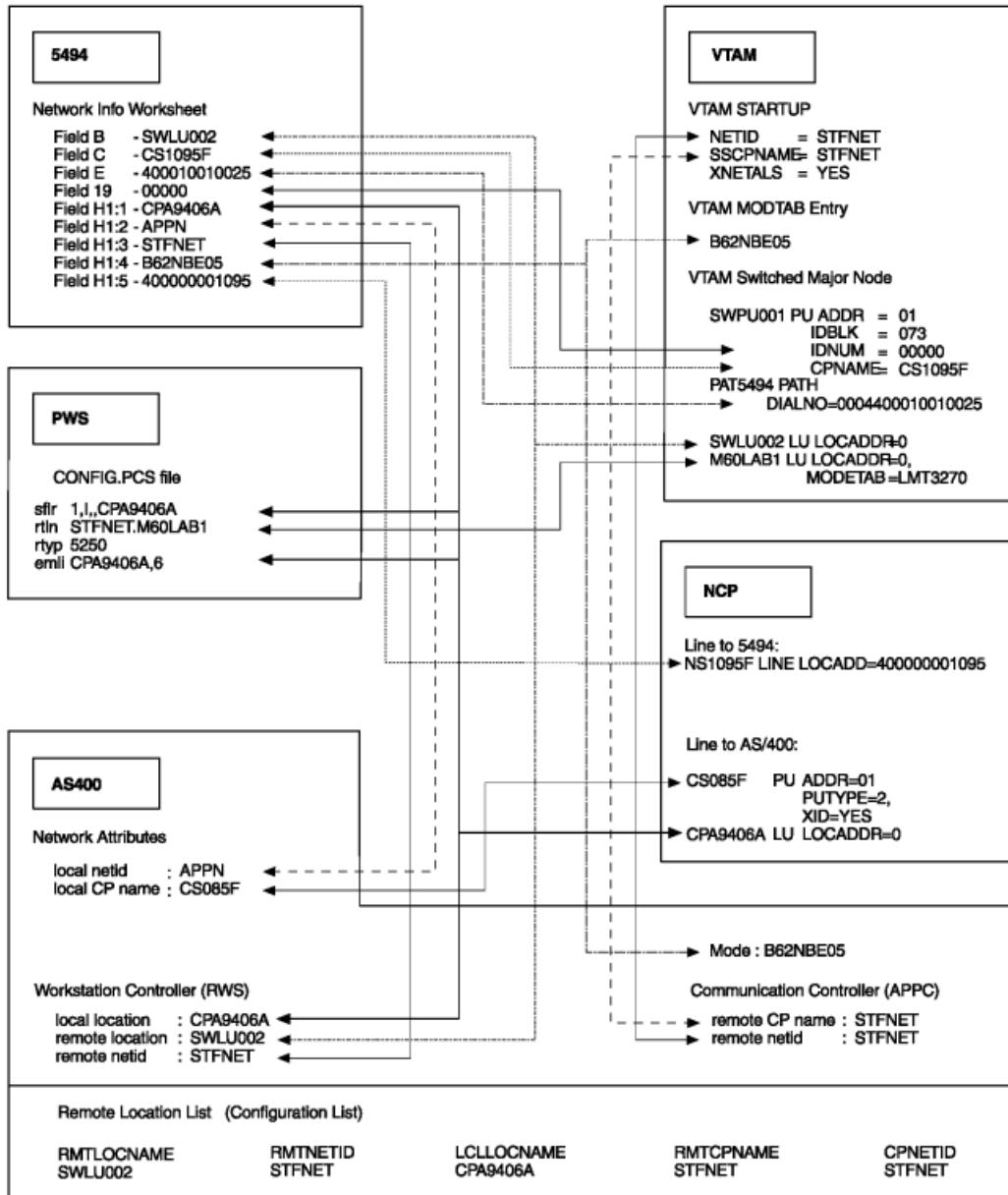
C.12.3 Matching Parameters

In the following example, the 5494 has a different network ID from the AS/400 system.

The PWS is attached to the 5494 by way of the twinaxial cable.

The following names (network qualified names) are used:

- SSCP name: STFNET.STFNET
- AS/400 LU name: APPN.CPA9406A
- AS/400 CP name: APPN.CS085F
- 5494 CP name: STFNET.CS1095F
- 5494 LU name: STFNET.SWLU002
- PWS PC AT LU name: STFNET.M60LAB1
- PWS Partner (AS/400) LU name CPA9406A.



C.12.4 3745 System Generation File Entries

This section shows 3745 system generation file entries for the NCP and mode table entries.

Subtopics:

- [C.12.4.1 NCP File Entries](#)
- [C.12.4.2 Mode Table Entries](#)
- [C.12.4.3 VTAM Startup Procedure](#)
- [C.12.4.4 VTAM Switched Major Node](#)

C.12.4.1 NCP File Entries

```

NCPN1    BUILD  CATRACE=(YES,100),
          AUXADDR=500,
          ADDSESS=500,
          ENABLTO=120,
          LOADLIB=NCPOLOAD,
          MAXSSCP=4,
          MAXSUBA=31,
          MODEL=3745,
          NETID=STFNET,
          NEWNAME=NCPN1,
          NUMHSAS=4,
          OLT=YES,
          PATHEXT=0,
          PRTGEN=NOGEN,
          SLODOWN=12,
          SUBAREA=29,
          TGBXTRA=0,
          TRACE=(YES,100),
          TYPGEN=NCP,
          TYPSSYS=MVS,
          USGTIER=5,
          VERSION=V5R3,
          VRPOOL=24

N043     GROUP   DIAL=NO,LNCTL=SDLC,TYPE=NCP,MODETAB=LMT3270,
          ISTATUS=INACTIVE,DUPLEX=FULL,CLOCKNG=EXT,
          MAXDATA=265,MAXOUT=7,PUTYPE=2,PASSLIM=16,PACING=0,
          VPACING=(5,3),RETRIES=(7,4,3),PAUSE=0,RNRLIMT=20

```

* CONFIGURATION FOR AS/400 SYSTEM

```

NS101N   LINE    ADDRESS=101
          SPACE
CS101N   PU      ADDR=01,ISTATUS=ACTIVE,XID=YES
          SPACE
CPA9406A LU      LOCADDR=0,RESSCB=256
          SPACE

```

```
*****
*           TOKEN RING
*****
```

```

*           PHYSICAL LINE - TIC CONNECTION
*****
F002     GROUP   ECLTYPE=PHYSICAL,
          TYPE=NCP,
          DIAL=NO,
          LNCTL=SDLC,
          LEVEL2=ECLNARL2,
          LEVEL3=ECLNARL3,
          LEVEL5=NCP,
          TIMER=(ECLNART1,,ECLNART2,ECLNART3),
          XIO=(ECLNARXL,ECLNARXS,ECLNARXI,ECLNARXK),
          USERID=(5668854,ECLRBDT,NORECMS,,ECLNMVT),
          MAXPU=1,
          SPEED=9600,
          NPACOLL=NO,
          PUTYPE=1,
          PUDR=NO,
          COMPTAD=YES,
          COMPSWP=YES,
          COMPOWN=YES

```

* CONFIGURATION FOR 5494 ASN LINE

```
NS1095F  LINE ADDRESS=(1095,FULL),PORTADD=4,RCVBUFC=4095,MAXTSL=4096,
```

```
LOCADD=400000001095,TRSPEED=16,ADAPTER=TIC2,  
UACB=(X$P4AX,X$P4AR)
```

```
*****  
* LOGICAL LINES  
*****  
* CONTROLLER CONNECTIONS  
*****  
FGW3      GROUP ECLTYPE=LOGICAL,AUTOGEN=08,PHYPORT=1,CALL=INOUT.  
          TYPE=NCP,  
          DIAL=YES,  
          LNCTL=SDLC,  
          LEVEL2=ECLNAVL2,  
          LEVEL3=ECLNAVL3,  
          LEVEL5=NCP,  
          TIMER=(ECLNAVT1,,ECLNAVT2,ECLNAVT3),  
          XIO=(ECLNAVXL,ECLNAVXS,ECLNAVXI,ECLNAVXK),  
          USERID=(5668854,ECLVBDT,NORECMS,,ECLNMVT),  
          LINEADD=None,  
          LINEAUT=YES,  
          MAXPU=1,  
          NPACOLL=NO,  
          PUTYPE=2,  
          XMITDLY=None,  
          COMPOWN=YES,  
          RETRIES=(6,0,0,6)
```

```
* GENERATED BY ECL
```

C.12.4.2 Mode Table Entries

```
LMT3270 MODETAB
```

```
*****  
* B62NBE05                                     *  
*   LU 6.2                                      *  
*   NO ENCRYPTION                                *  
*   INBOUND, OUTBOUND PACING                      *  
*   EBCDIC, RU=1024                                *  
*   SRCVPAC=4                                     *  
*****  
B62NBE05      MODEENT LOGMODE=B62NBE05,  
               FMPROF=X'13',  
               TSPROT=X'07',  
               PRIPROT=X'B0',  
               SECPROT=X'B0',  
               COMPROT=X'50A1',  
               RUSIZES=X'8787',  
               SSNDPAC=X'02',  
               ENCR=B'0000',  
               PSNDPAC=X'00',  
               SRCVPAC=X'04',  
               TYPE=0,  
               PSERVIC=X'060200000000000000002400'
```

Note: If you use PC Support/400 (DOS version), your mode table must include a mode of QPCSUPP in order to communicate through the SNA network.

C.12.4.3 VTAM Startup Procedure

```

SSCPID=01,NOPROMPT,IOPINT=600,
CONFIG=01,LIST=00,MAXSUBA=31,SUPP=NOSUP,
HOSTSA=1,
GWSSCP=NO,
NETID=STFNET,
SSCPNAME=MVS1,
XNETALS=YES,
CRPLBUF=(208,,15,,1,16),
IOBUF=(600,280,19,,33,20),
LFBUF=(104,,0,,1,1),
LPBUF=(64,,0,,1,1),
SFBUF=(163,,0,,1,1),
BSBUF=(300,,,25,60)

```

C.12.4.4 VTAM Switched Major Node

```

SWNTRGW  VBUILD  TYPE=SWNET,MAXNO=5,MAXGRP=12
SWPU001  PU      ADDR=01,                                X
                  DISCNT=NO,                               X
                  ENCR=OPT,                               X
                  ISTATUS=ACTIVE,                         X
                  CPNAME=CS1095F,                          X
                  IDBLK=073,                               X
                  IDNUM=00000,                            X
                  PACING=0,                               X
                  MAXPATH=4,                            X
                  PUTYPE=2, VPACING=0
PAT5494   PATH    DIALNO=0004400010010025,                X
                  GRPNM=FGW18,                            X
                  GID=1,                                 X
                  PID=1,                                 X
                  USE=YES,                               X
SWLU002   LU      LOCADDR=0, ISTATUS=ACTIVE, MODETAB=LMT3270
M60LAB1   LU      LOCADDR=0, MODETAB=LMT3270

```

C.12.5 AS/400 System Configuration

Note: The fields shown in these examples do not necessarily appear on the screen during the CREATE process.

These examples are based on output from the PRINT function of the remote hardware configuration lists, and some fields may appear differently when viewed using the DISPLAY function.

In order to provide input for those fields that do not appear during the basic CREATE process, you must press **F9**-All Fields before completing the CREATE process.

Many of the fields represent the system defaults and may not require operator input.

Most of these fields cannot be changed using the CHANGE function.

Subtopics:

- [C.12.5.1 Communications Line Description](#)
 - [C.12.5.2 Communication Controller Description](#)
 - [C.12.5.3 Communication Device Description](#)
 - [C.12.5.4 Mode Description](#)
 - [C.12.5.5 Workstation Controller Description](#)
 - [C.12.5.6 APPN Configuration List](#)
-

C.12.5.1 Communications Line Description

```
Line description . . . . . LIND      NCP664
Option . . . . . . . . . OPTION    *ALL
Category of line . . . . . . . . . *SDLC
```

```
Resource names . . . . . RSRNAME   LIN011
Online at IPL . . . . . ONLINE    *NO
Data link role . . . . . ROLE     *SEC
Physical interface . . . . . INTERFACE *RS232V24
Connection type. . . . . CNN      *NONSWTPP
Switched network backup . . . . . SNBU     *NO
Exchange identifier. . . . . EXCHID   05629383
NRZI data encoding . . . . . NRZI     *YES
Maximum controllers . . . . . MAXCTL   1
Clocking . . . . . . . . . CLOCK    *MODEM
Line speed . . . . . . . . . LINESPEED 19200
Modem type supported . . . . . MODEM    *NORMAL
Modem data rate select . . . . . MODEMRATE *FULL
Autoanswer type . . . . . . . . . AUTOANSTYP *DTR
Maximum frame size . . . . . . . . . MAXFRAME 1033
Error threshold level . . . . . THRESHOLD *OFF
Duplex . . . . . . . . . DUPLEX    *FULL
Modulus . . . . . . . . . MODULUS   8
Text . . . . . . . . . TEXT      *BLANK
```

```
Attached nonswitched controllers . . CTL
```

```
-----Attached Nonswitched Controllers-----
```

```
CLT664
```

```
Link speed . . . . . . . . . LINKSPEED 9600
Cost/connect time . . . . . COSTCNN 0
Cost/byte . . . . . . . . . COSTBYTE 0
Security for line . . . . . SECURITY *NONSECURE
Propagation delay . . . . . PRPDLY   *TELEPHONE
User-defined 1 . . . . . . . . . USRDFN1 128
User-defined 2 . . . . . . . . . USRDFN2 128
User-defined 3 . . . . . . . . . USRDFN3 128

Maximum outstanding frames . . . . MAXOUT 7
Inactivity timer . . . . . . . . . INACTTMR 300
Poll response delay . . . . . POLLRSPDLY 0
Data Set Ready drop timer . . . . DSRDRPTMR 6
Clear To Send timer . . . . . CTSTMNR 25
Remote answer timer . . . . . RMTANSTMNR 60
Recovery limits . . . . . . . . . CMNRCYLMT
  Count limit . . . . . . . . . 2
  Time interval . . . . . . . . . 5
```

C.12.5.2 Communication Controller Description

The communication controller description should not be confused with the workstation controller description that is used for the 5494. Configure a HOST controller description if the next node in the network is a System/370, host or configure an APPC controller description if the next node is some other system capable of performing SNA subarea network node support.

```
Controller description . . . . . CTLID      CLT664
Option . . . . . . . . . . . OPTION      *ALL
Category of controller . . . . . . . . . *APPC

Link Type. . . . . . . . . . . LINKTYPE    *SDLC
Online at IPL . . . . . . . . . ONLINE     *NO
Switched connection . . . . . . . . . SWITCHED  *NO
Switched network backup . . . . . . . . . SNBU      *NO
Attached Nonswitched Line. . . . . . . . . LINE      NCP664
Character code . . . . . . . . . . . CODE      *EBCDIC
Maximum frame size . . . . . . . . . MAXFRAME   1033
Remote network identifier. . . . . . RMTNETID  STFNET
Remote control point . . . . . . . . . RMTCPNAME STFNET
Data link role . . . . . . . . . . . ROLE      *NEG
Station address. . . . . . . . . . . STNADR    01
Text . . . . . . . . . . . TEXT      *BLANK

Attached devices . . . . . . . . . DEV
-----Attached Devices-----
SWLU002

APPN-capable . . . . . . . . . APPN      *YES
APPN CP session support. . . . . . CPSSN    *NO
APPN node type . . . . . . . . . NODETYPE   *LENNODE
APPN transmission group number . . . TMSGRPNBR 1

SDLC poll priority . . . . . . . POLLPTY   *NO
SDLC poll limit . . . . . . . . . POLLLMNT  0
SDLC out limit . . . . . . . . . OUTLMT    *POLLLMNT
SDLC connect poll retry . . . . . CNNPOLLRTY *NOMAX
SDLC NDM poll timer . . . . . . . . . NDMPOLLTMR *CALC
Recovery limits . . . . . . . . . . . CMNRCYLMT
  Count limit . . . . . . . . . . . 2
  Time interval . . . . . . . . . . . 5
```

C.12.5.3 Communication Device Description

Note: This configuration will be generated automatically by the system and should not be entered by the operator.

```
Device description . . . . . DEVD      SWLU002
Option . . . . . . . . . . . OPTION      *ALL
Category of device . . . . . . . . . *APPC
```

```

Remote location name . . . . . RMTLOCNAME SWLU002
Online at IPL . . . . . ONLINE *NO
Local location . . . . . LCLLOCNAME CPA9406A
Remote network identifier . . . . . RMTNETID STFNET
Attached controller. . . . . CTL CLT664
Message queue . . . . . MSGQ QSYSOPR
    Library . . . . . *LIBL
Local location address . . . . . LOCADR 00
APPN-capable . . . . . APPN *YES
Single session . . . . . SNGSSN
    Single session capable . . . . . *NO
Text . . . . . . . . . TEXT AUTOMATICALLY CREATED BY QLUS

```

Mode MODE

-----Mode-----

*NETATTR

C.12.5.4 Mode Description

Mode description MODD B62NBE05

```

Class-of-service . . . . . COS #CONNECT
Maximum sessions . . . . . MAXSSN 57
Maximum conversations. . . . . MAXCNV 57
Locally controlled sessions. . . . . LCLCTLSSN 56
Preestablished sessions. . . . . PREESTSSN 0
Inbound pacing value . . . . . INPACING 7
Outbound pacing value. . . . . OUTPACING 7
Maximum length of request unit . . . MAXLENRU *CALC
Text . . . . . . . . . TEXT *BLANK

```

C.12.5.5 Workstation Controller Description

```

Controller description . . . . . CTLD RTP5494
Option . . . . . . . . . OPTION *ALL
Category of controller . . . . . *RWS

```

```

Controller type. . . . . TYPE 5494
Link type. . . . . . . . . LINKTYPE *NONE
Online at IPL . . . . . ONLINE *NO
Remote location . . . . . RMTLOCNAME SWLU002
Local location . . . . . LCLLOCNAME CPA9406A
Remote network identifier . . . . . RMTNETID STFNET
Text . . . . . . . . . TEXT *BLANK

```

Attached devices DEV

-----Attached Devices-----

D3477BB00 D3477BB01 D3476BB04 D3477BB05

Device wait timer DEWAITTMR 120

Allocation retry timer : : ALCRTYTMR 5

Recovery limits CMNRCYLMT

C.12.5.6 APPN Configuration List

Configuration list:	QAPPNRMT
Configuration list type:	*APPNRMT
Text:	

APPN Remote Locations						
Remote Location	Remote Network ID	Local Location	Remote Control Point	Control Point Net ID	Secure Loc	
SWLU002	STFNET	CPA9406A	STFNET	STFNET	*NO	
APPN Remote Locations						
Remote Location	Remote Network ID	Local Location	Single Session	Number of Conversatio	Local Control sPoint	Pre-establis Session
SWLU002	STFNET	CPA9406A	*NO	10	*NO	*NO
APPN Remote Locations						
Remote Location	Remote Network ID	Local Location	Text			
SWLU002	STFNET	CPA9406A				

D.0 Appendix D. Sample Completed Worksheets

This appendix contains completed worksheets you can refer to as examples while filling out your own worksheets for keyboard translation and network link establishment. Completed worksheets containing information for the examples are in [Appendix C](#). See the

lists below for page references:

Keyboard Translation Worksheet (two languages)	Topic D.0
SDLC Network Link Establishment Worksheet	Topic D.0
X.21 Switched Network Link Establishment Worksheet	Topic D.0
X.25 Network Link Establishment Worksheet	Topic D.0
Token-Ring, Ethernet, or Frame-Relay Network Link Establishment Worksheet	Topic D.0

The following additional sample completed worksheets are provided in [Appendix C](#):

AS/400 Communication Worksheet--SDLC	Topic C.3.2
AS/400 Communication Worksheet--X.21 Switched	Topic C.5.2
AS/400 Communication Worksheet--X.21 Leased	Topic C.6.2
AS/400 Communication Worksheet--X.25	Topic C.7.2
AS/400 Communication Worksheet--Frame Relay	Topic C.9.2
AS/400 Communication Worksheet--Token-Ring	Topic C.1.2
AS/400 Communication Worksheet--Ethernet	Topic C.2.2
Token-Ring Gateway Worksheet	Topic C.3.3
Ethernet Gateway Worksheet	Topic C.4.3
Network Information Worksheet	Topic C.1.1
Frame Relay Token-ring Bridge Worksheet	Topic C.9.3

Keyboard Translation Worksheet5494 location Switzerland

Fill in the blanks:

A Default keyboard translation 28**B** Select alternate keyboard translations by port and station:**5250 Workstation Address**

	0	1	2	3	4	5	6
0	24	24	24				
1							
2							
3							
4							
5							
6							
7							

Send the completed worksheet to the person who will configure the 5494 to ensure correct operation of the 5494.

SDLC Network Link Establishment Worksheet

Note to the operator: The instructions in the *IBM 5494 Remote Control Unit User's Guide* tell you how to use this information to establish a link to your AS/400 system.

Section 1. Connection to primary system:

Check one:

 NO OPERATOR ACTION NEEDED. Use parameters below for H1, H2, H3, or H4 AS/400 system. (Circle one)**Section 2. Connect to one of the AS/400 systems using the parameters listed below:**H1 AS/400 system 1 familiar name Rochester

A Select one: (Leased, Switched, or Switched/V.25 bis)

B For Switched, select connection type (Manual Dial, Manual Answer, Auto-Answer)

C For Switched/V.25 bis, select connection type (Initiate Call, Answer Call)

D H1 AS/400 System 1

H2 AS/400 system 2 familiar name Chicago

A Select one: (Leased, Switched, or Switched/V.25 bis)

B For Switched, select connection type (Manual Dial, Manual Answer, Auto-Answer)

C For Switched/V.25 bis, select connection type (Initiate Call, Answer Call)

D H2 AS/400 System 2

H3 AS/400 system 3 familiar name New York

A Select one: (Leased, Switched, or Switched/V.25 bis)

B For Switched, select connection type (Manual Dial, Manual Answer, Auto-Answer)

C For Switched/V.25 bis, select connection type (Initiate Call, Answer Call)

D H3 AS/400 System 3

H4 AS/400 system 4 familiar name _____

A Select one: (Leased, Switched, or Switched/V.25 bis)

B For Switched, select connection type (Manual Dial, Manual Answer, Auto-Answer)

C For Switched/V.25 bis, select connection type (Initiate Call, Answer Call)

D H4 AS/400 System 4

Note: If your current connection to an AS/400 system is active, the 5494 must be varied offline at that AS/400 system before a new connection is attempted.

X.21 Switched Network Link Establishment Worksheet

Note to operator: The instructions in the *IBM 5494 Remote Control Unit User's Guide* tell you how to use this information to establish a link to your AS/400 system.

Section 1. Connection to primary system:

Check one:

NO OPERATOR ACTION NEEDED.

Use parameters below for H1, H2, H3, or H4 AS/400 system. (Circle one)

Section 2. Connect to one of the AS/400 systems using the parameters circled or listed below:

H1 AS/400 system 1 familiar name

Oslo 1

A Select one: (Initiate Call, Answer Call)

B H1 AS/400 system 1

H2 AS/400 system 2 familiar name

Copenhagen

A Select one: (Initiate Call, Answer Call)

B H2 AS/400 system 2

H3 AS/400 system 3 familiar name

Oslo 2

A Select one: (Initiate Call, Answer Call)

B H3 AS/400 system 3

H4 AS/400 system 4 familiar name

Stockholm

A Select one: (Initiate Call, Answer Call)

B H4 AS/400 system 4

Section 3. Description of facility registration:

A Facility name

Direct Call Registration

65/1/0/123456-+

B Facility code and parameters

Direct Call Cancellation

65/2-+

A Facility name

Redirection of Call Activation

63/1-+

B Facility code and parameters

Redirection of Call Cancellation

63/2-+

Note: If your current connection to an AS/400 system is active, the 5494 must be varied offline at that AS/400 system before a new connection is attempted.

X.25 Network Link Establishment Worksheet - Page 1

Note to operator: The instructions in the *IBM 5494 Remote Control Unit User's Guide* tell you how to use this information to establish a link to your AS/400 system.

Section 1. Connection to primary system:

Check one:

- NO OPERATOR ACTION NEEDED.
 Use parameters below for H1, H2, H3, or H4 AS/400 system 1. (Circle one)

Section 2. Connect to one of the AS/400 systems using the parameters circled or listed below or on the next page:

H1 AS/400 system 1 familiar name

Chicago 1

- A H1 AS/400 system 1
B Connection type: (Initiate SVC call), Answer SVC call, or Open PVC)
All remaining parameters (C through L) are optional.
C Password (X)
D Logical channel identification (L)
E Network user identification (I)
F User group (U)
G Reverse charging (R) (Yes or No)
H Facilities (F)
I Logical link override (QLLC (Q), or ELLC (E)) ELLC recovery value:
J Address extension (T):
 Called Address
 Calling Address
K Window size (W)
L Packet size (P) (064, 128, 256, 512, or 1024)

*GOODLINK**OIF**23842S83**None**None**None**None**None**Chicago 2*

H2 AS/400 system 2 familiar name

- A H2 AS/400 system 2
B Connection type: (Initiate SVC call), Answer SVC call, or Open PVC)
All remaining parameters (C through L) are optional.
C Password (X)
D Logical channel identification (L)
E Network user identification (I)
F User group (U)
G Reverse charging (R) (Yes or No)
H Facilities (F)
I Logical link override (QLLC (Q), or ELLC (E)) ELLC recovery value:
J Address extension (T):
 Called Address
 Calling Address
K Window size (W)
L Packet size (P) (064, 128, 256, 512, or 1024)

*None**023**None**N/A**N/A**N/A**N/A**N/A**N/A**03*

Note: If your current connection to an AS/400 system is active, the 5494 must be varied offline at that AS/400 system before a new connection is attempted.

X.25 Network Link Establishment Worksheet - Page 2

Note to operator: The instructions in the *IBM 5494 Remote Control Unit User's Guide* tell you how to use this information to establish a link to your AS/400 system.

Section 2. Connect to one of the AS/400 systems using the parameters circled or listed below or on the previous page:

H3 AS/400 system 3 familiar name	<i>New York</i>
A H3 AS/400 system 3	
B Connection type: (Initiate SVC call, Answer SVC call, or Open PVC)	
All remaining parameters (C through L) are optional.	
C Password (X)	<i>N/A</i>
D Logical channel identification (L)	<i>None</i>
E Network user identification (I)	<i>N/A</i>
F User group (U)	<i>N/A</i>
G Reverse charging (R) (Yes or No)	<i>N/A</i>
H Facilities (F)	<i>N/A</i>
I Logical link override (QLLC (Q), or ELLC (E))	ELLC recovery value:
J Address extension (T): Called Address Calling Address	<i>N/A</i> <i>N/A</i>
K Window size (W)	<i>None</i>
L Packet size (P) (064, 128, 256, 512, or 1024)	
H4 AS/400 system 4 familiar name	
A H4 AS/400 system 4	
B Connection type: (Initiate SVC call, Answer SVC call, or Open PVC)	
All remaining parameters (C through L) are optional.	
C Password (X)	
D Logical channel identification (L)	
E Network user identification (I)	
F User group (U)	
G Reverse charging (R) (Yes or No)	
H Facilities (F)	
I Logical link override (QLLC (Q), or ELLC (E))	ELLC recovery value:
J Address extension (T): Called Address Calling Address	
K Window size (W)	
L Packet size (P) (064, 128, 256, 512, or 1024)	

Note: If your current connection to an AS/400 system is active, the 5494 must be varied offline at that AS/400 system before a new connection is attempted.

Token-Ring, Ethernet, or Frame-Relay Network Link Establishment Worksheet

Note to the operator: The instructions in the *IBM 5494 Remote Control Unit User's Guide* tell you how to use this information to establish a link to your AS/400 system.

Section 1. Connection to primary system:

Check one:

NO OPERATOR ACTION NEEDED.

Section 2. Connect to one of the AS/400 systems using the parameters listed below:

H1 AS/400 system 1 familiar name _____ **Main System**

A Connect

B H1 AS/400 system 1

H2 AS/400 system 2 familiar name _____

Accounting System

A Connect

B H2 AS/400 system

H3 AS/400 system 3 familiar name _____

A Connect

B H3 AS/400 system 3

H4 AS/400 system 4 familiar name _____

A Connect

B H4 AS/400 system 4

Note: If your current connection to an AS/400 system is active, the 5494 must be varied offline at that AS/400 system before a new connection is attempted.

I E.0 Appendix E. Worksheet Master Copies Index

| Fill out and use the blank worksheets while planning your data communication network. The following worksheets are included:

5494 Remote Workstation Setup Worksheet Topic [3.8](#)

AS/400 Communication Worksheet--SDLC Topic [5.4](#)

AS/400 Communication Worksheet--X.21 Switched Topic [5.5](#)

AS/400 Communication Worksheet--X.21 Leased Topic [5.6](#)

AS/400 Communication Worksheet--X.25 Topic [5.7](#)

AS/400 Communication Worksheet--Frame Relay Topic [5.8](#)

AS/400 Communication Worksheet--Token-Ring Topic [5.9.1](#)

AS/400 Communication Worksheet--Ethernet Topic [5.9.2](#)

Token-Ring Gateway Worksheet Topic [5.10.1](#)

Ethernet Gateway Worksheet Topic [5.10.2](#)

Network Information Worksheet Topic [5.3](#)

Keyboard Translation Worksheet	Topic 5.11
Frame Relay Token-Ring Bridge Worksheet	Topic 5.12
SDLC Network Link Establishment Worksheet	Topic 6.1.1
X.21 Switched Network Link Establishment Worksheet	Topic 6.2.1
X.25 Network Link Establishment Worksheet	Topic 6.3.1
Token-Ring, Ethernet, or Frame-Relay Network Link Establishment Worksheet	Topic 6.4.1

GLOSSARY Glossary

This glossary includes terms and definitions from:

- The *IBM Dictionary of Computing* (New York; McGraw-Hill, Inc., 1994)
- The *Information Technology Vocabulary*, developed by Subcommittee 1, Joint Technical Committee 1, of the International Organization for Standardization and the International Electrotechnical Commission (ISO/IEC JTC1/SC1). Definitions of published parts of this vocabulary are identified by the symbol (I) after the definition; definitions taken from draft international standards, committee drafts, and working papers being developed by ISO/IEC JTC1/SC1 are identified by the symbol (T) after the definition, indicating that final agreement has not yet been reached among the participating National Bodies of SC1.

The following cross-references are used in this glossary:

- **Contrast with.** This refers to a term that has an opposed or substantively different meaning.
- **See.** This refers the reader to multiple-word terms in which this term appears.
- **See also.** This refers the reader to terms that have a related, but not synonymous, meaning.
- **Synonym for.** This indicates that the term has the same meaning as a preferred term, which is defined in the glossary.

10BASE2. IEEE standard for a baseband Ethernet operating at 10 Mbps and using thin coaxial cable with a maximum length per segment of 200 m (658 ft). Synonymous with *thin Ethernet*.

10BASE5. IEEE standard for a baseband Ethernet operating at 10 Mbps and using thick coaxial cable with a maximum length per segment of 500 m (1645 ft). Synonymous with *thick Ethernet*.

10BASE-T. IEEE standard for a baseband Ethernet operating at 10 Mbps and using unshielded twisted-pair cable with a maximum length per segment of 100 m (329 ft).

A

address sharing. The capability of having 1- to 4-separate sessions with the AS/400, using a display that only requires one port and station address to provide this function.

adjacent link station (ALS). A link station that directly connects to a given node by link connection, over which network traffic can be carried.

alphanumeric. A character set that contains letters, digits, and usually other characters, such as punctuation marks. Synonymous with alphabetic.

ALS. Adjacent link station.

alternate host. When the 5494 is configured to use Concurrent Host Attachment, an alternate host is an AS/400 system that is not the primary host.

analog network. A type of communication network that carries analog signals.

ANSI. American National Standards Institute.

ASCII. American National Standard Code for Information Interchange.

AWG. American Wire Gauge.

B

blank character. A character that does not display but occupies a position on the display screen.

BNC. A connector used with some coaxial cables.

bps. Bits per second.

| **bridge.** (1) A functional unit that interconnects two local area networks
| that use the same logical link control protocol but may use different
| medium access control protocols. (T) (2) A functional unit that
| interconnects multiple LANs (locally or remotely) that use the same
| logical link control protocol but that can use different medium access
| control protocols. A bridge forwards a frame to another bridge based on
| the medium access control (MAC) address. (3) In the connection of local
| loops, channels, or rings, the equipment and techniques used to match
| circuits and to facilitate accurate data transmission.

| **bridging.** In LANs, the forwarding of a frame from one LAN segment to
| another. The destination is specified by the medium access control (MAC)
| sublayer address encoded in the destination

C

cable adapter. A device used to connect two cable ends together. An adapter is used instead of a splice.

cable-through. A method of cabling that allows multiple workstations to be attached to a single cable path.

cabling system. A system of communication wiring installed in a building to connect computers and communication equipment.

call progress signal (CPS). A signal from the X.21 network providing status information for a link establishment call.

CCITT. International Telegraph and Telephone Consultative Committee. This was an organization of the International Telecommunication Union (ITU). On 1 March 1993 the ITU was reorganized, and responsibilities for standardization were placed in a subordinate organization named the Telecommunication Standardization Sector of the International Telecommunication Union (ITU-TS). "CCITT" continues to be used for recommendations that were approved before the reorganization.

CDSTL. Connect data set to line.

character location. A location on the display screen at which one character can be displayed.

circuit type. A type of circuit that connects two remote locations. Analog circuits and X.21 circuits can be point-to-point switched, point-to-point nonswitched, or multipoint nonswitched. X.25 circuit types can be either PVC or SVC. Either PVC or SVC can be used on the same 5494 but not at the same time.

closed user group. A group of locations that can communicate among themselves but cannot call to or receive calls from any location outside the group. However, it is possible to define a different closed user group for a different application.

coaxial cable. A cable consisting of one conductor, usually a small copper tube or wire, within and insulated from another conductor of larger diameter, usually copper tubing or copper braid.

command. An instruction that directs the system to do an operation.

communication common carrier. In the USA and Canada, a government-regulated private company (such as a telephone or telegraph company) that furnishes the general public with telecommunication service facilities.

communication network. The equipment and software required to transmit data signals between an AS/400 system and a remote site.

Concurrent Host Attachment. A function that enables the 5494 to
| communicate with one to four AS/400 systems over a single data link level
| connection.

configuration. The arrangement of a computer system or network as defined by the nature, number, and chief characteristics of its functional units. See *system configuration*.

control unit. A device, such as the 5494, that controls the flow of data between workstations and an AS/400 system. Some control units do error checking, error handling, and error recovery procedures, and provide certain editing features to the workstation.

CPS. Call progress signal.

CSU. Customer setup

cursor. A movable marker on the screen that can appear as an underscore or as a rectangular block. The cursor indicates where the next character entered from the keyboard will appear.

customer setup (CSU). The unpacking, setup, and checkout of IBM CSU-designated machines by user personnel, according to a sequence of instructions provided by IBM, without the use of tools or help from IBM personnel.

data circuit-terminating equipment (DCE). The equipment that does the signal conversion and coding between the data terminal equipment (DTE) and the communication line.

data communication system. A configuration of data processing devices, software, and a communication network connected for information interchange.

data link. The equipment and protocols used for sending and receiving data.

data link connection identifier (DLCI). A numeric identifier that is used in a frame relay network to identify the next segment of a permanent virtual circuit over which a frame is to be relayed.

data management. The process of controlling the acquisition, analysis, storage, retrieval, and distribution of data.

data network identification code. A four-digit code added as a prefix to the network address when the receiving DTE is attached to another network or is located in another country.

data packet. The type of data grouping used to send information from one DTE to another DTE attached to an X.25 packet-switched network.

data terminal equipment (DTE). Any machine, such as the 5494 or the AS/400 system, that is connected to a network.

DBCS. Double-byte character set.

DCE. Data circuit-terminating equipment.

DDS. Dataphone digital service.

delimiter. A character used to indicate the beginning and end of a character string.

dependent workstation (DWS). See *nonprogrammable workstation (NWS)*.

diacritic. A mark added to a letter to indicate a special phonetic value.

digital data network. A communication network that uses digital transmission (that is, information is transmitted in digital form as a serial stream of pulses).

direct call request. A request that allows an operator to establish communication on an X.21 switched network without using the network address of the AS/400 system. The network subscription must specify direct call request.

disconnect command. An operator command that is entered from a workstation keyboard or from the 5494 Utility Program and that, when processed, ends the data link between two data stations when no active sessions are established between the stations.

display screen. The presentation surface of a cathode ray tube used to display graphics or alphanumeric information.

display station. An input/output device containing a display screen and an attached keyboard.

DIX. Digital, Intel, Xerox.

DLCI. data link connection identifier.

DM. Disconnect mode.

double-byte character set (DBCS). A set of characters in which each character is represented by 2 bytes. Languages such as Japanese, Chinese, and Korean, which contain more symbols than can be represented by 256 code points, require double-byte character sets. Because each character requires 2 bytes, the typing, display, and printing of DBCS characters requires hardware and programs that support DBCS. Contrast with single-byte character set.

DSR. Data set ready.

DSU. Data service unit.

DTE. Data terminal equipment.

DTR. Data terminal ready.

duplex. A method of data transmission in which the data can be transmitted in both directions simultaneously.

DWS. Dependent workstation. See *nonprogrammable workstation (NWS)*.

E

EBCDIC. Extended binary-coded decimal interchange code.

emulation. The imitation of all or part of one system by another, so that the imitating system accepts the same data, runs the same programs, and achieves the same results as the imitated system.

EIA. Electronics Industries Association.

ELLC. Enhanced logical link control.

enhanced logical link control. A type of logical link control used in X.25 communication.

Ethernet. A 10-Mbps baseband local area network that allows multiple stations to access the transmission medium at will without prior coordination, avoids contention by using carrier sense and deference, and resolves contention by using collision detection and delayed retransmission. Ethernet uses carrier sense multiple access with collision detection (CSMA/CD).

exclusion key. A key that, if present on the telephone, is located under the handset and is used to establish data communication.

| **explorer frame.** See *explorer packet*.

| **explorer packet.** A packet, generated by the source host that traverses
| the entire token-ring network gathering information on the possible paths
| the host might use.

external modem. A modem that is not integrated into the DTE.

F

facility registration. Allows an operator to register for user facilities on an X.21 switched network (for example, the closed user group or redirection of calls).

facility request code. A one- or two-digit number representing a subscription parameter.

facsimile. The use of a communications system for the electronic transmission and receipt of images.

familiar name. The informal name that a 5494 user associates with a particular AS/400 system.

fan-in/out modem. A modem that uses a point-to-point line to attach multiple 5494s to the AS/400 system. Each 5494 operates as if it were part of a multipoint line and processes only the data addressed to it.

fax. Facsimile.

field. One or more consecutive positions on the display screen set up for a specified type of data.

| **filter.** A device or program that separates data, signals, or material in
| accordance with specified criteria.

flow control negotiation. The ability to alter packet size and packet window size. These can be changed from call to call if the network subscription allows flow control negotiation.

font. A family or assortment of characters of a given size and style; for example, 9 point Bodoni modern.

formatted display. A display screen with fields established for specific information. The mode that the workstation is in while signed on to the system.

fractional T1. Fractional T1 is the process whereby individual channels on a T1 multiplexer are allocated portions of the 1.544 Mbps transmission rate available on a T1 interface.

frame. A single transmission of variable length (32-bit minimum format) that SDLC uses for transmission of data over a communication network.

frame handler (FH). A router function that uses the address field in a frame relay frame. Synonym for frame relay frame handler (FRFH).

frame relay network. A network that consists of frame relay frame handlers (FRFH) and in which frames are passed from one frame relay terminal equipment station to another through a series of one or more FRFHs.

H

half-duplex. A method of data transmission in which data can be transmitted in both directions, but not at the same time.

hexadecimal. Pertains to a numbering system with a base of 16. Valid digits range from 0 through F, where F represents the highest unit's position, which is equivalent to decimal 15.

home position. The first input position of the first input field.

host system. In a data communication system, the computer that provides end users with services such as computation and databases, and that usually does network control functions. For the 5494, the host system is always an AS/400 system.

I

IBM Cabling System. A system of IBM-manufactured communication wiring that provides a common cable and connector type for a wide variety of wire types (such as coaxial, twinaxial, and telephone twisted-pair). Compare with *twinaxial cable* and *telephone twisted-pair (TTP) cable*.

Note: It is used to pass information between devices separated by up to 1524 m (5000 ft).

IBM 5299 Terminal Multiconnector. See *terminal multiconnector*.

IEEE. Institute of Electrical and Electronics Engineers.

image. The characters or attributes displayed on a display screen. Also a bit-mapped graphic display of a picture.

incoming calls barred. A facility that prevents all incoming calls to a DTE on all logical channels for a period of time.

independent workstation (IWS). See *programmable workstation (PWS)*.

input field. An area on the display in which an operator enters data. Input fields may be blank on the display and can be preceded by a request, issued by a program, that requires information or an action from the operator.

integrated services digital network (ISDN). A digital end-to-end telecommunication network that supports multiple services including, but not limited to, voice and data.

Note: ISDNs are used in public and private network architectures.

interface. A shared boundary between two functional units, defined by functional characteristics, signal characteristics, or other characteristics, as appropriate. The concept includes the specification of the connection of two devices having different functions. (T)

interface adapter. A device that connects two machines with different physical characteristics.

| **Internet Protocol (IP).** A protocol used to route data from its source to its destination in an Internet environment.

| **Internetwork Packet Exchange (IPX).** The network protocol used to connect Novell's servers, or any workstation or router that implements IPX, with other workstations. Although similar to the Internet Protocol (IP), IPX uses different packet formats and terminology.

| **IP.** Internet Protocol.

| **IPX.** Internetwork Packet Exchange.

| **ISDN.** Integrated services digital network.

ISO. International Standards Association.

IWS. Independent workstation. See *programmable workstation (PWS)*.

K

keyboard translation table. A translate table downloaded from an AS/400 system during the power-on process of a device. The new table replaces the default keyboard translate table of the device.

KTT. Keyboard translation table (KTT).

kVA. Kilovolt-ampere.

L

leading pad. A byte inserted into the data stream to synchronize the modem.

leased line. A communication line that is permanently connected, always available, and does not require dialing to establish communication. Synonymous with *nonswitched line*.

link management interface (LMI). The interface over which status messages are exchanged between two points in a frame relay network.

link window size. The maximum number of I-frames that can be sent from the 5494 without receiving an acknowledgment from the network.

LLC. Logical link control.

LMI. link management interface

local location address. The address used to define each remote workstation. This address must be obtained from the AS/400 system operator.

local loopback. A test procedure done to verify the operation of the modem attached to the 5494.

local network address. The network address of the 5494. Some networks require this to be sent with the AS/400 network address on a call from the 5494 to the AS/400 system.

logical channel. In packet mode operation, one logical channel is used for each PVC or SVC. Several logical channels can be established on the same data link by interleaving the transmission of packets.

logical channel identifier. A 12-bit number used to identify a logical channel. It consists of a 4-bit logical channel group number and an 8-bit logical channel number.

logical link control. Information included in data packets for X.25 that provides end-to-end link-level-type functions to the SNA layers in the AS/400 system and the 5494.

LU. Logical unit.

M

| **MAC.** Medium access control.

| **Management Information Base (MIB).** A collection of objects that can be accessed by means of a network management protocol.

manual options. Options that allow the workstation operator to change call parameters from one call to the next.

| **medium access control (MAC).** (1) For local area networks, the method of determining which device has access to the transmission medium at any time. (2) A technique used to establish the sequence of *data stations* that are in temporary control of the *transmission medium*. (T)

MGN. Multiground neutral.

| **MIB.** Management Information Base.

modem (modulator-demodulator). A device that converts digital data from a computer to an analog signal that can be transmitted on a telecommunication line, and converts the analog signal received to data for the computer.

multipoint line. A data link that connects three or more data stations. A multipoint line is always leased.

N

NEC. National Electric Code.

NEMA. National Electrical Manufacturer's Association.

network address. The number that the network uses to identify a DTE.

nonprogrammable terminal (NPT). See *nonprogrammable workstation (NWS)*.

nonprogrammable workstation (NWS). A workstation that is incapable of operating independently of the 5494 or AS/400 system. A personal computer or PS/2 computer running a 5250 emulation program is also considered a NWS by the 5494.

nonreturn to zero (NRZ). A data encoding method.

nonreturn to zero inverted (NRZI). A data encoding method.

nonswitched line. Synonym for *leased line*.

NRZ. Nonreturn-to-zero.

NRZI. Nonreturn-to-zero inverted.

null. The EBCDIC character that represents X'00'.

NWS. Nonprogrammable workstation. See *nonprogrammable workstation*.

O

offline. A condition when the 5494 is not communicating with the host system.

online. A condition when the 5494 is communicating with the host system.

open command. A command that is entered from a workstation keyboard, and when processed, establishes a permanent virtual circuit (PVC) between two data stations.

outgoing calls barred. A facility that prevents all outgoing calls from a DTE for a period of time.

P

packet. Information transmitted through a packet-switched network is divided up and inserted into packets. These usually consist of control information fields giving destination, sequence number, optional facilities, and often a user data area. Various kinds of packets are used to transmit system reference codes and supervise the virtual circuit.

packet size. The maximum number of bytes allowed in the user data area of a data packet. A default value, usually 128 bytes, is assigned at subscription time. On some networks, the packet size can be altered from call to call.

packet-switched. The transfer of data by means of address packets that occupy the network channel only during actual transmission. The channel is available for the simultaneous transfer of packets belonging to other network users.

packet window size. The maximum number of packets that can be sent without receiving an acknowledgment.

| **parallel bridges.** A pair of bridges connected to the same LAN segment, creating redundant paths to the segment.

password. The parameter used by the AS/400 system to allow access to the application program.

PDT. Printer Definition Table (PDT).

performance monitor. An AS/400 function that allows the AS/400 system to obtain response time data on NWSs attached to a 5494.

permanent virtual circuit (PVC). The packet-switched equivalent of a leased line. The 5494 and the AS/400 system appear to the user to be permanently connected.

point-to-point line. A data link that interconnects two DTEs. It can be either switched or leased.

port. The hardware coupling used to attach the workstations or communication network to the 5494.

Post Telephone and Telegraph Administration (PTT). A name used to describe a government operating agency that controls the transportation of information (postal, voice, or data) within that country.

power cord. A cord that plugs into a wall outlet supplying electrical power.

printer definition table (PDT). A translate table downloaded from an AS/400 system during the power-on process of a 3477, 3486, or 3487 device if the 3477, 3486, or 3487 device is attached to an ASCII printer. The new translate table replaces the 3477, 3486, or 3487 existing translate table used for printers. See *translate table*.

primary host. The primary host is the first host with which the 5494 establishes a session. It is the host from which the 5494 receives code corrections (AS/400 PTFs for the 5494).

program. A sequence of instructions suitable for processing by a computer.

programmable terminal (PT). See *programmable workstation (PWS)*.

programmable workstation (PWS). A workstation that can operate independently of an AS/400 system, but can also communicate with the AS/400 system (for example, a personal computer or PS/2 computer running PC Support/400).

protocol. A set of instructions, requests, and responses providing the means of controlling the transfer of data between devices.

PSN. Public switched network.

PTT. Post Telephone and Telegraph Administration.

public switched network (PSN). A communication facility owned by a telephone company through which subscribers can be connected by dialing the unique telephone number of another subscriber.

PVC. Permanent virtual circuit.

PWS. Programmable workstation. See *programmable workstation (PWS)*.

Q

QLLC. Qualified logical link control.

qualified logical link control. A type of logical link control used in X.25 communication.

R

Recognized Private Operating Agency (RPOA). A CCITT term for organizations that provide network services.

Recommendation V.24. A recommendation for interfaces set by the CCITT and amended periodically. V.24 is a specification that defines the list of definitions for interchange circuits between data terminal equipment (DTE) and data circuit-terminating equipment (DCE). (Includes, but is not limited to, interchange circuits defined in EIA-232D and EIA-366.)

Recommendation V.25 bis. A recommendation for interfaces set by the CCITT and amended periodically. V series defines standards for interfaces and voice board modem. V.25 bis defines automatic calling/answering for the general switched telephone network using the 100-series interchange circuits.

Recommendation V.28. A recommendation for interfaces set by the CCITT and amended periodically. In data communications, electrical characteristics for unbalanced double-current interchange circuits. (These characteristics are identical to those defined in EIA-232D.)

Recommendation V.35. A recommendation for interfaces set by the CCITT and amended periodically. V.35 defines a communication interface composed of five single-ended interchange lines and separate differential lines for transmit data, transmit clock, receive data, and receive clock signals.

Recommendation X.21. A recommendation for interfaces set by the CCITT and amended periodically. The X series of recommendations defines standards for data transmission interfaces. X.21, specifically, defines the interface between data terminal equipment and public data networks for digital leased and circuit-switched synchronous services.

Recommendation X.25. A recommendation for interfaces set by the CCITT and amended periodically. The X series of recommendations defines standards for data transmission interfaces. X.25, specifically, defines the interface between data terminal equipment and packet-switched networks.

redirection of call. On an X.21 or X.25 switched network, this facility allows an operator to specify if incoming calls should be directed to another number.

remote attachment. Attachment of workstations to a host system through communication lines, and usually through an intermediate control unit.

remote workstation. A workstation that is attached to a host system through communication lines.

response time. The interval between the entry of a command and the time when the display is released for input. Response time is used to measure system performance.

reverse charging acceptance. A facility that allows the network to pass reversed-charge calls to the DTE.

reversed charging. A facility that allows virtual calls to be billed to the DTE receiving the calls.

RF. Radio frequency.

| **RFC 1490.** Request for Comment 1490 defines the frame relay architecture
| that the 5494 uses.

RFS. Ready-for-sending.

RPOA. Recognized private operating agency.

RTS. Request-to-send.

RU. Request/response unit.

S

SABM. Set asynchronous balanced mode.

| **SAP.** Service access point.

SBCS. Single-byte character set.

SDLC. Synchronous data link control.

| **service access point (SAP).** (1) In Open Systems Interconnection architecture, the point at which the services of a layer are provided by an entity of that layer to an entity of the next higher layer. (T) (2) A logical point made available by an adapter where information can be received and transmitted. (3) The logical point at which an n+1-layer entity acquires the services of the n-layer. A single SAP can have many links terminating in it. (4) A logical address that allows a system to route data between a remote device and the appropriate communications support.

shared addressing. The capability of having 1- to 4-separate sessions with the AS/400, using a display that only requires one port and station address to provide this function.

SHM. Short-hold mode.

short-hold mode (SHM). An X.21 switched communication option that allows a link between two stations to remain established only when there is data to transfer. The 5494 supports, but does not initiate, an SHM session. The AS/400 system determines and controls SHM sessions.

| **Simple Network Management Protocol (SNMP).** (1) An IP network management

| protocol that is used to monitor routers and attached networks. (2) A
| TCP/IP-based protocol for exchanging network management information and
| outlining the structure for communications among network devices. SNMP is
| an application layer protocol. Information on devices managed is defined
| and stored in the application's Management Information Base (MIB).

single-byte character set (SBCS). A character set in which each character is represented by a one-byte code. Contrast with double-byte character set.

SNA. Systems Network Architecture.

SNA Alert Function. Problem determination information collected by the 5494 and sent to the system services control point and physical unit (SSCP-PU) controller.

SNA subarea network. A communication network consisting of at least one S/390 host system running Virtual Telecommunication Access Method (VTAM) and one or more communication controllers (3720, 3725, or 3745) running Network Control Program (NCP).

SNBU. Switched network backup.

| **SNMP.** Simple Network Management Protocol.

| **source route bridging.** A bridging method that uses the routing
| information field in the IEEE 802.5 medium access control (MAC) header of
| a frame to determine which rings or token-ring segments the frame must
| transit. The RI field is inserted into the MAC header by the originating
| (source) node. The information in the routing information field is
| derived from explorer packets generated by the source host.

| **spanning tree.** The method by which bridges automatically develop a
| routing table and update that table in response to changing topography to
| ensure that there is only one route between any two LANs in the bridged
| LAN. This method prevents packet looping, where a packet returns in a
| circuitous route back to the sending router.

station protector. A device used on the system cable to offer protection against lightning for attachments made in different buildings.

subarea network. See *SNA subarea network*.

subscription. An agreement between a user and a PTT/network supplier for the use of certain network services and optional facilities.

SVC. Switched virtual circuit.

switched line. A connection between computers or devices that is established by dialing.

switched network backup (SNBU). An optional DCE facility that allows a user to specify a switched line to be used as an alternate path if the primary line becomes unavailable or unusable.

switched virtual circuit (SVC). The packet-switched service equivalent of a switched line. It allows communication between the 5494 and one of several possible AS/400 system. Switched virtual circuits are also known as virtual calls.

Synchronous Data Link Control (SDLC). A communication mode for managing synchronous, code-transparent, serial-by-bit information transfer over a data communication channel or line. Transmission exchanges may be duplexed or half-duplex, over switched or nonswitched lines. The configuration of the communication line may be point-to-point, multipoint, or loop.

system configuration. A process that determines the devices, programs, and methods that form a data processing system.

system operator. A person who uses a workstation that is designated as the system console to activate certain system functions and to control and monitor system operation.

system reference code. A four- or six-digit alphanumeric code that identifies a failure or status condition.

Systems Network Architecture (SNA). A set of rules for controlling the transfer of information in a data communication network.

T

telecommunication. The transmission of data between locations by telephone line, telegraph, radio, satellite system, television, or microwave media.

telephone twisted-pair (TTP) cable. An unshielded cable with two or more pairs of insulated copper wire twisted together at a minimum of two twists per foot. This type of cable is commonly used in telephone installations for voice transmission. It can also be used for data transmission. However, TTP cable is subject to interference and line loss, and therefore is limited to lengths of 305.8 m (1000 ft) when used to interconnect workstations attached to the 5494. Compare with *IBM Cabling System* and *twinaxial cable*.

terminal multiconnector. A device used to connect up to seven workstations to a single port on the 5494. The IBM 5299 Terminal Multiconnector can be used when cable-through is inappropriate or unavailable.

terminator switch. A switch used to terminate the system cable on the last workstation when cable-through is used and to provide a feed-through path for other stations on the cable-through line.

test mode indication. A signal generated by the modem that indicates that the modem is in a test mode, doing a self-test, a remotely requested test, or locally requested test.

throughput class negotiation. The throughput class is the approximate data transmission rate through the virtual circuit under ordinary conditions. (Network congestion could reduce this rate.) Unlike the link access data rate, which is a permanent property of the network connection, the throughput class can be altered by the display station operator if the network subscription allows. The subscription charge may increase with the throughput class selected. Note that choosing a different throughput class may also involve altering packet and window sizes.

token-ring network. A network using a ring topology to pass data transmission authority (called a *token*) in an unidirectional circuit from one workstation to another so that transmitted data not only reaches the addressed station but also returns to the transmitting station.

translate table. A table that defines the translation of EBCDIC to ASCII and allows the use of special characters and nonstandard codes. For KTT, it defines what EBCDIC character is displayed for a particular key.

TTP. Telephone twisted-pair (cable).

TTPA. Twinaxial-to-telephone twisted-pair adapter.

twinaxial cable. A shielded cable with two conductors. It is used to pass information between devices separated by up to 1524 m (5000 ft). Compare with *IBM Cabling System* and *telephone twisted-pair (TTP) cable*.

Twinaxial Workstation Attachment. A cable and connector that combines four twinaxial connections into one sub-miniature D-shell connection for attachment to the 5494.

typematic keys. Keyboard keys that repeat their function when pressed and held down.

T1. A standard for a high-speed digital interface that supports a transmission rate of 1.544 Mbps.

V

V dc. Volts direct current.

VOM. Volt ohmmeter.

VPD. Vital product data.

V.24. See *Recommendation V.24*.

V.28. See *Recommendation V.28*.

V.25 bis. See *Recommendation V.25 bis*.

V.35. See *Recommendation V.35*.

virtual call. A call placed on a switched virtual circuit.

virtual circuit. A logical connection between two DTEs that enables them to exchange information according to a standard communication procedure with the sequence of information preserved. A virtual circuit occupies transmission capacity only when the data is actually being transmitted.

W

window size. The maximum number of packets that the DTE is authorized to transmit and have outstanding at any given time. It is the basic flow control mechanism in X.25 and protects the network from accepting packets faster than they can be accepted by the remote DTE. The window can also be used by a DTE to prevent transmission of packets from the network if the DTE is unable or unwilling to queue them. A default window size, usually 2, is assigned at subscription time. On some networks, this can be altered for a given virtual call.

workstation. An input or output device that allows either the transmission of data or the reception of data (or both) from the AS/400 system as needed to do a job. A workstation is always a display station, personal computer, or printer.

workstation address. The address set by the operator during setup of the workstation. This address can be set on rocker switches, by keyboard entry, or by control panel entry.

workstation customization. To change characteristics about the way your device works with the AS/400 system.

workstation operator. A person who uses the keyboard to do operations at a display station.

World Trade (WT). Any of the countries in Europe, Asia, Africa, and South America served by IBM.

WT. World Trade.

X

XMIT. Transmit.

X.21. See *Recommendation X.21*.

X.25. See *Recommendation X.25*.

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