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**AS/400, S/38 AND PS/2 AS T2.1 NODES
IN A SUBAREA NETWORK**

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Abstract

Advanced Peer-to-Peer Networking (APPN) is the latest network implementation to connect peer systems. Today with the T2.1 implementation on VTAM V3R2 and NCP V4R3, V5R2 it is possible to attach APPN networks to a subarea network and use all the T2.1 advantages (for example, use of routing capabilities on the host, parallel and multiple session support).

This document contains information on this implementation of Advanced Peer-to-Peer Networking (APPN) in a network consisting of an AS/400, System/38, PS/2 and an S/370 SNA subarea network. It will also discuss some of the considerations which need to be made when a switched line, leased line or token-ring connection is used in this type of network.

The information is based on installation and operation experiences obtained during a residency project at the ITSC Raleigh.

You should treat this document only as a supplement to the standard IBM reference publications.

ASYS MSYS LSYS CSYS

(361 pages)

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Preface

This document is intended to provide IBM system engineers and network specialists with the necessary information for guiding, planning, configuring and implementing an AS/400, S/38 and PS/2 as T2.1 nodes using an S/370 SNA subarea network.

In this document we will name the T2.1 support without the APPN extensions as LEN (Low Entry Network) support.

This document will also discuss the use of switched lines, leased lines or token-ring connections between T2.1 nodes and the S/370 SNA subarea network.

The APPN network and S/370 SNA subarea network that were implemented for this residency were tested using a combination of "Display Station Passthrough" and AS/400 PC Support. Results are detailed in the relevant chapters.

How the Document is Organized

This document is divided into the following chapters:

- Each "scenario" chapter can be used as a single guide for the relevant scenario setup, it contains the definitions, tests and traces for each scenario done in this residency.
- Chapter 1 **"Introduction"** gives an overview of the LU6.2 and T2.1 support available in the AS/400, S/38, PS/2 and S/370 subarea network. It will also give details of the residency project.
- Chapter 2 **"Concepts and Products"** discusses what is required to implement a network consisting of a PS/2, S/38, AS/400 and S/370 SNA subarea network and introduce the concepts and products used.
- Chapter 3 **"Network Definition Considerations"** provides the necessary information that personnel should be aware of when implementing this type of APPN network and S/370 SNA subarea network.
- Chapter 4 **"Scenario 1: AS/400 and S/38 Adjacent to the Host"** describes the functions and definitions when initiating a session either from an AS/400 or an S/38 through a S/370 subarea network to another S/38 or AS/400. The AS/400 will be connected to the host via a switched line.
- Chapter 5 **"Scenario 2: AS/400A, AS/400B and PS/2 Adjacent to the Host"** describes the functions and definitions when initiating a session from a PS/2 with AS/400 PC Support and DOS 3.3 to AS/400A and AS/400B through a S/370 SNA subarea network. The AS/400A and PS/2 will be connected to the host via SDLC leased lines and AS/400B is connected to the host via a token-ring.
- Chapter 6 **"Scenario 3: AS/400A, AS/400B and PS/2 Adjacent to the Host"** describes the functions and definitions when initiating a session from a PS/2 with AS/400 PC Support and DOS 3.3 to AS/400A and AS/400B through a S/370 SNA subarea network. AS/400A and AS/400B are connected via a token-ring to each other.
- Chapter 7 **"Scenario 4: AS/400A, AS/400B and PS/2 Adjacent to the Host"** describes the functions and definitions when initiating a session from a PS/2 with AS/400 PC Support and DOS 3.3 to AS/400A and then to AS/400B which is situated behind the S/370 subarea network.
- Chapter 8 **"Scenario 5: AS/400A, AS/400B and PS/2 Adjacent to the Host"** describes the functions and definitions when initiating a session from a PS/2 with OS/2 EE 1.2 (5250 WSF) to AS/400A and then to AS/400B which is situated behind the S/370 subarea network.
- Appendixes **"Definitions and Bibliography"** lists the necessary definitions and manuals used in this residency to implement this APPN network and S/370 subarea network.

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1.0 Introduction

Advanced Peer-to-Peer Networking (APPN) is an enhancement to the node T2.1 architecture that:

- Enables peer systems to control the network in which they participate without the need for a traditional SNA host.
- Facilitates dynamic routing of data from any node in the network to any other node without the need for the sender to manually configure the destination node and all intervening nodes. All nodes become logically adjacent even if they are not physically adjacent.

The latter ability distinguishes T2.1 nodes (with the APPN extensions) from Low Entry Network nodes. The table shown in Figure 1 serves to clarify this distinction:

NODE TYPE	FUNCTION PERFORMED	EXAMPLE IBM PRODUCT
T5	Session services and routing	Host with VTAM (or SSCP)
T4	Intermediate node routing	Communications Controller with NCP (e.g. IBM 37XX)
T2	Services for locally attached LUs (e.g. screens attached to an IBM 3174)	'Small' system or remote cluster controller (e.g. IBM S/38 or IBM 3174)
T2.1	Support for communications between peer computers in a network without the control of a T5 host	IBM PS/2 or PC, IBM S/36, IBM S/38, IBM AS/400. IBM 370 host with VTAM 3.2 and corresponding NCP appears as a T2.1 node to other T2.1 nodes.
LEN	A T2.1 node (without the APPN extensions)	See T2.1 but without the APPN extensions
APPN	Extends T2.1 so that sessions may be started between non-adjacent peers	S/36 with APPN, AS/400
LU6.2	Protocol for application-to-application communications between peer systems.	Supports APPC programs (IBM programs, e.g. DSPT, DDM, or user-written programs)
APPC	Also known as LU6.2	See LU6.2

Figure 1. Some SNA Node Types and Examples

The IBM S/370 networking products do not support APPN; however with VTAM V3R2 and NCP V4R3 or NCP V5R2 they appear as a Low Entry Network node to other T2.1 nodes.

This means that an S/370 host in a subarea network can only participate in an APPN network as a Low Entry Network node but with the possibility of performing intermediate routing between other nodes in the network.

The IBM S/38 now supports independent sessions to and through an S/370 SNA subarea network to host applications and to other T2.1 nodes behind the subarea network, for example AS/400, S/36 or another S/38. The S/38 can only participate in an APPN network or S/370 subarea network as a Low Entry Network node.

The PC or PS/2 using AS/400 PC Support appears to both the APPN network and S/370 subarea network as a Low Entry Network node. AS/400 PC support uses LU6.2 and because it has T2.1 support, it now can establish sessions to non-adjacent AS/400's even behind an S/370 SNA subarea network. The PC or PS/2 can only participate in an APPN network as a Low Entry Network node.

This document describes these environments.

1.1 APPN Terminology

APPN was initially implemented only on the S/36, although other devices with what was then known as APPC or LU6.2 and T2.1 support, including S/38, IBM Personal Computers and Series/1's, could participate as Low Entry Network nodes. APPN is now also implemented on the AS/400, where it has been enhanced to become a superset of S/36 APPN. This enhancement has brought with it some important changes in terminology, as used in this manual. These can be summarized as follows:

- What was previously called an **End Node** in an S/36 environment is now correctly called a **Low Entry Network node** to represent systems implementing the low entry networking node.
- Only an AS/400 may at present be a true APPN **End Node**, which is a totally new type of node.

Keep in mind that because of the changed terminology, there may be differences in the APPN terminology used.

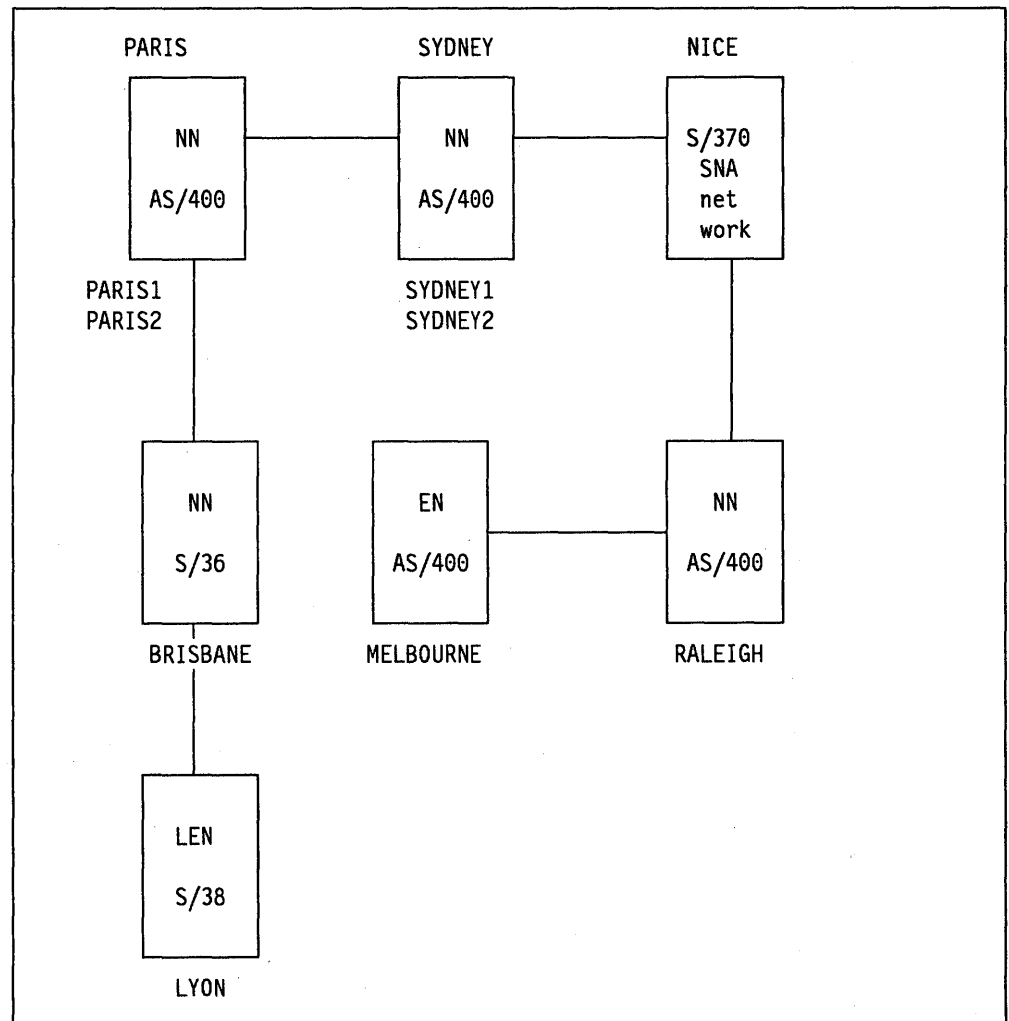


Figure 2. APPN Network including S/370 Host. SYDNEY, PARIS, BRISBANE, MELBOURNE, LYON, NICE and RALEIGH are control point (CP) names: PARIS1, PARIS2, SYDNEY1 and SYDNEY2 are additional local location names for the specific nodes.

Definitions for some of the terms you will find in this manual are presented in alphabetical order in the following section. These terms are applied to the AS/400 implementation of APPN. Figure 2 on page 3 should be referred to for an understanding of these definitions.

- **Adjacent Node**

A node that is immediately next to another node in the network. In Figure 2 on page 3, BRISBANE and SYDNEY are adjacent nodes to PARIS.

- **Class of Service (COS)**

In a communication network there may be several possible routes for a session between a local and a remote control point. Each route may include several different links and nodes. For APPN to choose the best possible route, a class-of-service table is used. This table is used to select which routes are acceptable for this session request and which route from this acceptable set yields the best available path.

There are five IBM-supplied modes and class of service tables included with the AS/400 operating system. The values in the COS tables may be modified to influence sessions routes.

- **Communications Line**

The physical path in data transmission.

- **Line Description (LIND)**

The description of a communications line of IBM AS/400 or S/38.

- **Control Unit Description (CUD)**

A description of the characteristics of a controller that is attached to the remote end of a communications line. Control unit descriptions are created on the AS/400 or S/38.

- **Control Point**

A node in an APPN network may contain a set of system tasks collectively referred to as a control point. The control point in a node is the manager of all APPN functions within that node and also enables communications to other control points in the network. The control point in a node enables it to perform route selection and directory searches.

- **Control Point Name**

A unique name given to each node in an APPN network, whether or not that node has a control point. It uniquely identifies the system in the network and is also by default a local location name. In Figure 2 on page 3, SYDNEY, RALEIGH, PARIS, etc., are all control point names to uniquely identify the respective nodes to other control points in the network.

- **Control Point (CP) Session**

In an APPN network, whenever the characteristics of a link or a node change (for example when a link is activated) details of such changes are passed between nodes (control points). Such information passes via a control point session. The CP - CP session which passes such topology updates and network searches uses a reserved IBM-supplied mode called CPSVCMG. Today, CP - CP sessions are only supported between AS/400's.

- **Conversation**

Once a communications session has been established between two nodes in a network, the APPC applications (including IBM-supplied applications such as DSPT) may communicate via this session; such a communication is called a conversation. A session may support many conversations serially but **only one at a time**.

- **Dependent Location (Dependent LU)**

A location (LU) where the host must send an Activate Logical Unit (ACTLU) command and establish a user session with a BIND command to, for example, an AS/400 LU (device). An example is AS/400 running, 3270 DE, RJEF, DHCF, etc. Any location where the location address is not specified to the host with '00' will be **dependent**.

- **Device Description (DEVD)**

The device description (LU) describes the characteristics of the logical connection between two locations (the local and remote location in the network).

- **Directory Services (DS)**

Directory services identifies the system that owns the remote location to which a session has been requested. Each system is identified by a combination of the network ID and the control point name. AS/400s configured as network nodes or as end nodes have a directory data base which records location names and associated control point names for:

- All locations on the local system - manually added to the local location list.
- Remote locations dynamically added when sessions are established with remote locations not previously in the data base, by means of a broadcast search; this is only valid for NN directory services.
- Remote locations on adjacent End Nodes with CP - CP session capability - passed each time the EN is activated and deleted when the CP-CP session with the EN terminates, this is only valid for NN Directory Services.
- Remote locations manually added to the APPN remote location list:
 - For adjacent Low Entry Network nodes
 - For adjacent End Nodes without CP-CP session capability
 - For locations beyond a host subarea network.

A request for a session with a remote location will initiate:

- No search request if the requested location name is also an NN CP name. (If the CP name of an end node or Low Entry Network node is use then a directed search is sent anyway.)
- A directed search request if the requested location name is found in the local directory data base and is not an NN CP name. (The second request for a particular remote location will always result in a directed search since the first request will have caused the directory data base to be updated with the requested remote location.)
- A broadcast search if the requested location name is not found in the local directory data base.

Note: Session establishment time can be longer if a network search is done, when the NN CP name was not specified as the remote location.

The IBM AS/400 location directory data base is stored across IPLs in the same way that the topology data base is stored. Thus, also like the topology data base, it need not be rebuilt at IPL time. This does not apply to the S/36, where the data base is rebuilt after every IPL.

- **Display Station Passthrough (DSPT)**

One of the APPC communications applications which can be used in an APPN environment. It allows a user on one node to gain access to an application on another non-adjacent peer node as if he was directly connected to that system.

- **Domain**

In an APPN network, a domain refers to the various portions of a network which includes a network node and its adjacent end nodes and/or Low Entry Network nodes. A network node must know about all the location names defined within its domain only (for location names outside of its domain it may perform network searches to find the owning CP name). To this end, end nodes (with a CP-CP session) register their local locations names with its adjacent network node server.

- **End Node (EN)**

A node that doesn't provide network services to other nodes, but may participate in the APPN network by using the services of an adjacent network node server.

An EN may reside only at the ends of an APPN network, as it cannot perform intermediate routing for other nodes. An EN can thus only participate as an origin or destination of a session. The advantage of an EN can be that less resources are used where network services are not required. The EN is a new concept for APPN, introduced with the AS/400, and is different from what was previously referred to as an end node or migration end node in S/36 publications.

An EN can only be:

- An IBM AS/400 configured with CP-CP session capability
- An IBM AS/400 configured without CP-CP session capability.

An EN can use the services of at least one NN server (up to five may be configured) to provide:

- For the EN with CP-CP capability:
 - Automatic registration of the EN's location names in the server's data base each time the CP-CP link to the EN is activated
 - Directory services and route selection (selected routes need not include the NN server).
- For the EN without CP-CP capability:
 - Manual registration of the EN's location names (other than the CP name) in the server's data base. (CP name here does not imply CP-CP session capability.)
 - Directory services and route selection.

- The first link in the route to any other location non-adjacent location (selected routes must include the NN server).

- **Independent Location (Independent LU)**

A location (LU) which performs T2.1 communications which do not **require** an SSCP - LU session. ACTLUs are not received and the AS/400 LU (device) can send the session BIND command to the partner LU on the host. The independent LU can act as a primary LU (when it is the sender of the bind) or as a secondary LU (when it is the receiver of the bind). Communications between APPN nodes are **independent**. The location address must be '00'.

- **Intermediate Routing Portion of the Network**

The intermediate routing portion of an APPN network consists of all the network nodes and the links between network nodes which are capable of performing intermediate session routing.

- **Intermediate Node**

An intermediate node is one which is "in between" at least two other nodes in a network. Intermediate nodes in an APPN network are capable of performing **intermediate session routing**; these nodes are called **network nodes**.

- **Intermediate Session Routing**

In Figure 2 on page 3, PARIS is adjacent to BRISBANE and SYDNEY. If BRISBANE establishes a communications session to SYDNEY then PARIS (an APPN network node) is capable of performing the necessary "session connecting" to enable BRISBANE to establish a session directly with SYDNEY. Such a function is called intermediate session routing; the session neither starts nor ends in the intermediate node but is routed through from session initiator to session destination.

- **Location Name**

In an APPN network every system has to be identified by a unique name. The name by which a node in an APPN network is uniquely identified is called the control point (CP) name. However, it may be required or preferred that a single node has to be known throughout the network by more than one name (or nickname). This means that AS/400 in an APPN network may be defined to have multiple nicknames; these nicknames are called **location names**. A control point name is also a location name. In Figure 2 on page 3, the CP names are PARIS, SYDNEY etc., while the location names are PARIS1, SYDNEY1, etc. A location name is traditionally referred to as an LU name in SNA (and IBM System/38) terminology. In the S/36 environment and AS/400 the term "location name" is used.

- **Low Entry Networking Node (LEN)**

A node that implements the Low Entry Network node LU6.2/T2.1 architecture without the APPN extensions.

A Low Entry Network node may reside only at the ends of an APPN network and cannot perform intermediate routing. Low Entry Network node is a new name for what was called an end node in the S/36 implementation of APPN. It cannot specify an adjacent NN as a network server, but an adjacent NN will perform directory and route selection services for the Low Entry Network node.

A Low Entry Network node must have defined, in its data base, all remote locations with which it wants to communicate. Moreover, the adjacent NN must manually configure the local location names of the Low Entry Network other than the CP name. (For a Low Entry Network node the CP name simply identifies the location in the network and does not imply a CP-CP session capability.)

A Low Entry Network node may be any node which supports T2.1 and LU6.2. Some examples are:

- An IBM System/38
- An IBM System/36 without the APPN feature
- An IBM 370 host with VTAM V3R2 and NCP V4R3 (or NCP V5R2 in the case of the 3745) appears as a Low Entry Network node to a T2.1 node.
- An IBM Personal Computer or PS/2 with APPC/PC, AS/400 PC Support or OS/2 EE 1.2.
- An IBM Series/1
- An IBM AS/400 with APPN (*NO) on the controller description.

Note: A S/370 appears as a Low Entry Network node but has the additional capability of performing intermediate routing between other nodes in the network.

- **Mode**

An IBM AS/400 mode is the same as an IBM System/38 mode or an IBM System/36 session group; it defines session characteristics such as:

- Maximum number of sessions.
- Maximum number of locally controlled sessions.
- Number of pre-established sessions.

On the System/38, the mode description was created and assigned only to a particular device description at configuration setup time. Now, on the AS/400, a mode is a separate object. It is created by the CRTMODD command, and is only associated with an APPC device, with APPN (*YES) specified in the device, at session establishment time. An IBM AS/400 mode must be associated with one particular APPC device with APPN(*NO) prior to varying the device description on.

Another task of a mode in the AS/400 environment is to specify a **class of service (COS)** object to be used for route selection.

- **Network Control Program (NCP)**

An IBM-licensed program that provides communication controller support for single-domain, multiple-domain and interconnected network capability.

- **Network Node (NN)**

An APPN network node (NN) provides all the following APPN functions:

- Intermediate session routing
- Route selection services
- Directory services.

An NN may provide these services to local users or to users on adjacent **End Nodes (EN)**, in which case the NN is called a network node server.

Only the following systems can be network nodes:

1. IBM AS/400
2. IBM System/36 with the APPN feature.

- **Node**

The systems in the APPN network between which communications sessions may be established; these can be any **peer system** capable of establishing a communications session. An IBM 370 host (with VTAM 3.2) can also be a node in an APPN network.

- **Node Type 2.1 (T2.1)**

A node T2.1 is a system, such as an IBM AS/400, IBM System/38, IBM System/36, or IBM PS/2 (with APPC/PC or AS/400 PC Support), which can participate in a peer-to-peer network. Type 2.1 support (T2.1 without APPN) is also called Low Entry Networking. (T2.1 was referred to in SNA as PU2.1.) Types of T2.1 nodes are:

1. Network Node (NN).
2. End Node (EN).
3. Low Entry Networking node (LEN).

Note: Network nodes and End nodes have the APPN extensions implemented.

- **Parallel Sessions**

Parallel sessions is the ability of T2.1 nodes to have two or more concurrently active sessions between the same two logical units using different pairs of network addresses. However, each session may have independent session parameters. One advantage of parallel sessions is that you don't have to define multiple LUs for each session.

- **Parallel Transmission Groups**

It is possible to have multiple logical connections (multiple TGs) between two nodes in a network. They are then said to have parallel TGs. Each TG is identified by an arbitrary number called a TG number. Any combination of SDLC leased or switched, X.25 PVCs, SVCs and token-ring is supported by the AS/400.

- **AS/400 PC Support**

It provides the same function of previous PC support implementations for the S/36 and S/38 and replaces virtual disk support by shared folder support. The architectural concept is different because the IBM AS/400 PC Support programs are now based on APPC. Moreover, this new implementation applies for SDLC, token-ring and twinaxial attachment. The AS/400 PC Support software package provides support to AS/400 users similar to the ECF package for S/370 users.

- **Peer System**

Systems that can have horizontal communication with "peer" systems on the same hierarchical level, for example T2.1 to T2.1.

- **RSCV**(route selection control vector)

A RSCV is a control vector which is attached to the BIND sent to initiate the session. The initiating system (or NN server for an EN without CP session capability) passes the BIND with RSCV to the first adjacent node specified in the RSCV. This node passes them to the next node specified in the RSCV, and so on until the destination node is reached.

The finite 255-byte length of the RSCV imposes a limitation on the number of nodes through which a BIND may be routed. The length of the CP names involved in the route will be a determining factor in the number of possible nodes (shorter names mean more potential links) in the route.

- **Session**

The logical connection between two nodes.

On an AS/400, the device status display shows active on the WRKCFGSTS display, when an APPC device is prepared to handle APPC sessions. The DSPMODSTS command must be used to display the status of any sessions. You may also use the DSPAPPNINF *SSN command.

On a S/36 the session can be ascertained by using the STATUS SUB-SYSTEM (D A) command with the number of sessions.

On the S/38, the logical connection exists when the line description, control unit description and device description show ACTIVE on each system.

- **Switched Line**

A telecommunication line in which the connection is established by dialing.

- **Token-Ring Network**

A network that uses a ring topology and that allows unidirectional data transmission between data stations. Such a local area network uses a token-passing procedure: tokens are passed in a circuit from node to node. A node that is ready to send can capture the token and insert data for transmission. Data returns to the transmitting station when they have made a complete circuit. Another token is generated and transmitted on the ring where it can be captured by the next node ready to transmit.

- **Topology**

The topology of a network is the network shape or the network configuration; it describes the nodes in a network and how they are linked.

- **Topology Data Base**

In order to choose the best route to a particular node in the network, TRS requires information about the network topology; this information is stored in a **topology data base**.

Each NN in an APPN network contains a complete topology data base. This data base contains information about the nodes in the network, the links between them and associated characteristics of these nodes and links.

When a **new** node or link is activated (or the characteristics of an existing node or link change) in an APPN network, the topology routing services in that node communicates with adjacent NNs using the CP-CP session. The two CPs then exchange information regarding the network topology and update their respective topology data bases. The information is then propagated around the network by an iterative process using CP-CP sessions throughout the network. Thus, all NNs in the (intermediate routing portion of

the) network will update their respective topology data bases with the information of the new node.

There are two types of T2.1 nodes which will not obtain updated topology information: APPN End Nodes (EN) which only contains a small topology data base containing information only about adjacent links, and Low Entry Network nodes which do not contain a topology data base at all.

- **Topology Routing Services (TRS)**

There may be many possible routes in an APPN network and the main function of TRS is to choose the best one when a session is requested.

The information used to determine the route is referred to as the class of service support (COS) and consists of the transmission group and node characteristics that are preferable for a given session. From among the applicable set of nodes and links the combination with the lowest weighting factor is selected.

- **Transmission Group**

Transmission group refers to the logical link between two systems. These TG characteristics are configured in the line description and apply to End Nodes as well as network nodes. They are used by APPN to select the best available route to satisfy the request for a session to the remote location. The TG numbers are represented in the controller descriptions in the adjacent nodes and should have the same value. The value of the transmission group number will be negotiated when the link is established.

- **Virtual Telecommunication Access Method (VTAM)**

A set of programs that maintain control of the communication between terminals and application programs running under the IBM VM/SP, MVS/SP and DOS/VSE operating systems.

- **X.25**

In data communication, X.25 is a recommendation of the CCITT that defines the interface between data terminal equipment and packet-switching networks.

1.2 ITSC Residency Project

The objective of this residency project was to implement and test an APPN network consisting of an AS/400, S/38 and PS/2 as T2.1 nodes connected through an S/370 SNA subarea network. This required the following to be accomplished:

- Design and establish different networks as shown in the "Test Network" section.
- Test the APPN support across switched lines, leased lines and token-ring connections by using DSPT and AS/400 PC Support.
- Write down considerations that may be useful to IBM SEs and customers installing this type of network.

1.2.1 Test Network

Five scenarios were tested in this residency. They were:

- **Scenario 1: AS/400 and S/38 Adjacent to the Host**

We tested the AS/400 "switched disconnect" function when attached to the host via a switched line and the S/38 PTF which can support independent sessions through the host. Sessions were initiated from the AS/400 as well as the S/38 by using "Display Station Passthrough". The results are documented in Chapter 4.

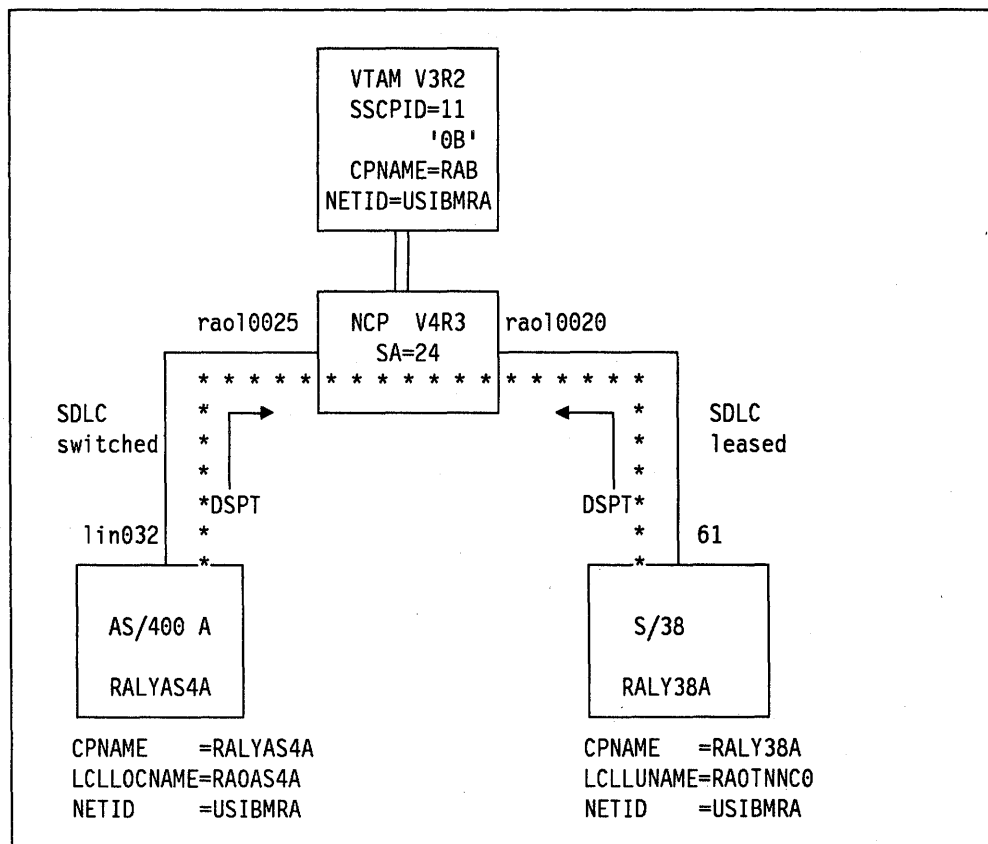


Figure 3. Scenario 1

Note: Due to APAR OY18594 for VTAM, we must give the CPNAME and LCLLUNAME or LCLLOCNAME a different name. When the APAR is fixed, you should also be able to use the same names for CPNAME and LCLLUNAME or LCLLOCNAME.

• **Scenario 2: AS/400,AS/400B and PS/2 Adjacent to the Host**

We tested the ability of the PS/2 to establish sessions, at the same time, with both AS/400's via the S/370 SNA subarea network by using AS/400 PC Support. The results are documented in Chapter 5.

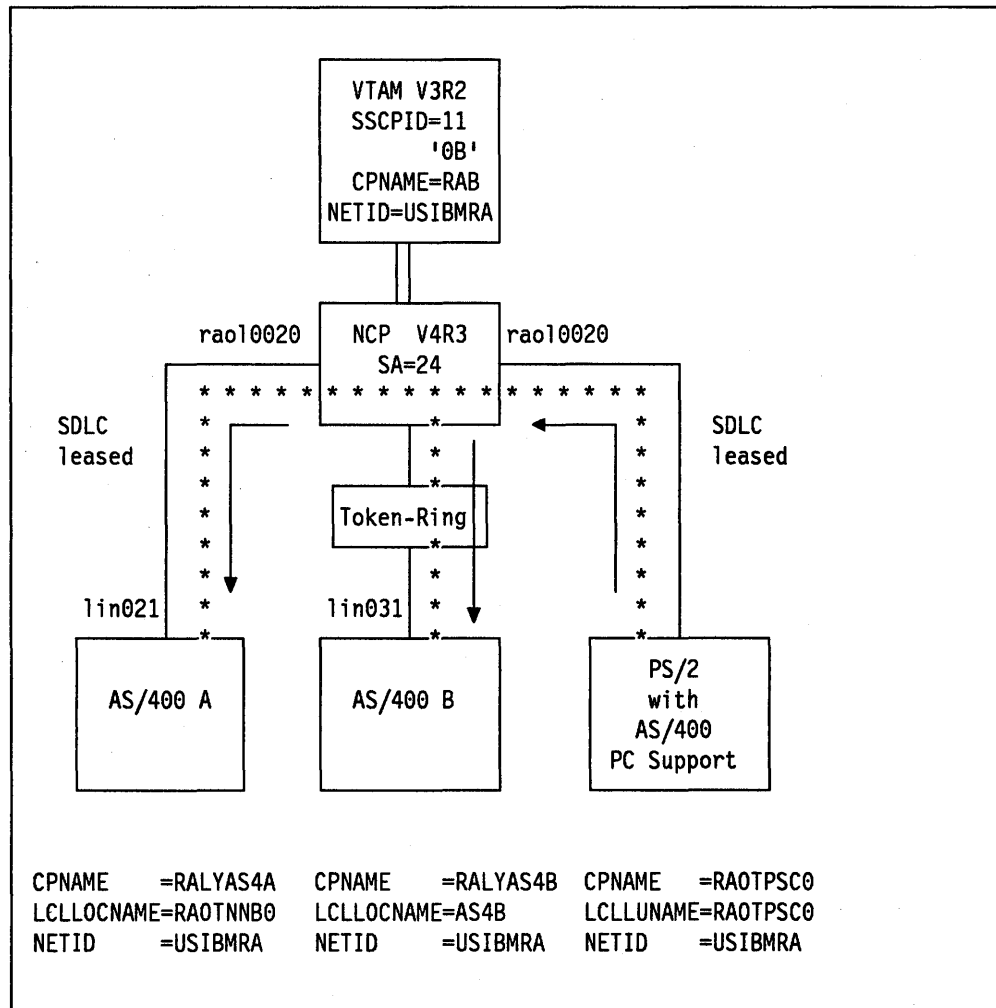


Figure 4. Scenario 2

Note: Due to APAR OY18594 for VTAM, we were not able to test the same scenario where the PS/2 is attached to the host through Token-Ring or switched line. When the APAR is fixed, you should also be able to attach the PS/2 to the host via Token Ring or SDLC switched line. The reason for this is that the PS/2 with AS/400 PC Support must have the CPNAME and Local Location name defined as the same name and this causes the problem in VTAM during the negotiation process.

- **Scenario 3: PS/2 and AS/400A Adjacent to the Host, where AS/400B is adjacent to AS/400A**

We tested the ability of the PS/2 with AS/400 PC Support to set up sessions with either AS/400A or AS/400B, both are behind the S/370 subarea network. The results are documented in Chapter 6.

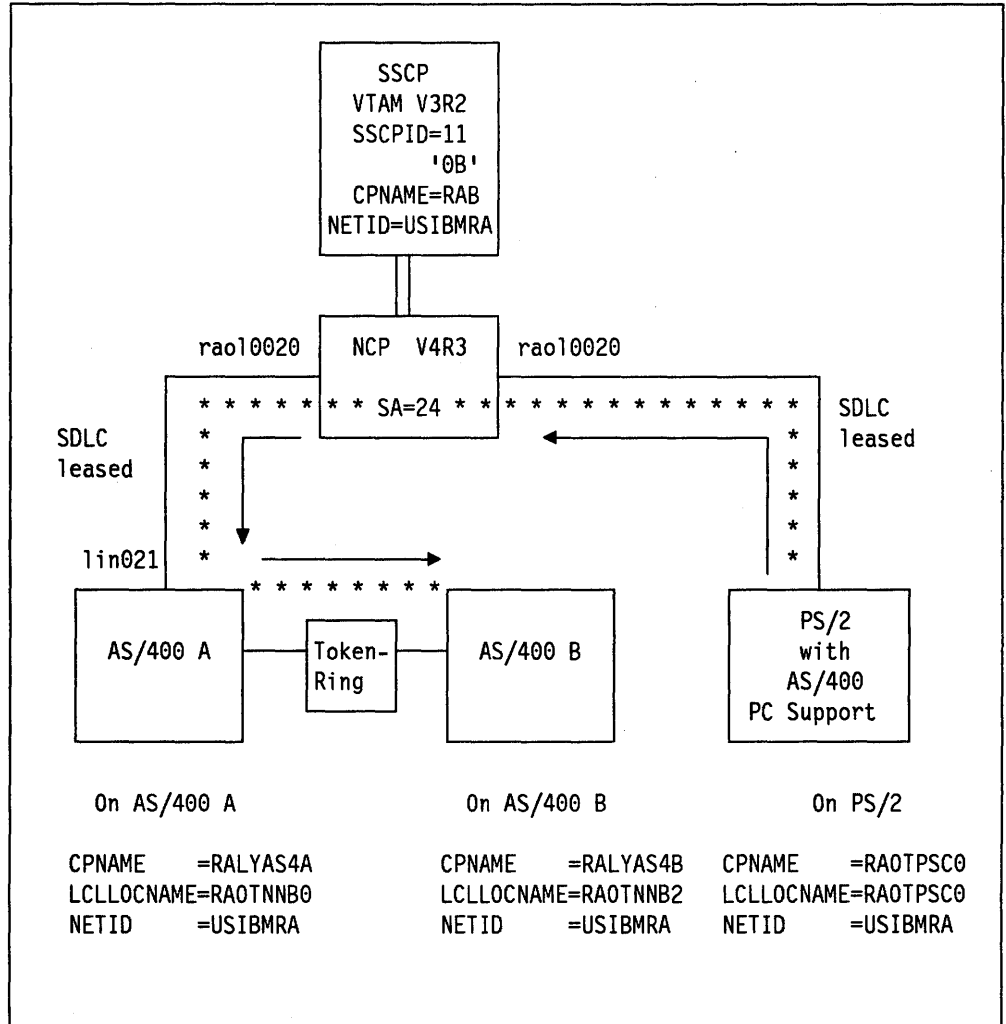


Figure 5. Scenario 3

Note: See the note explained for scenario 2.

- **Scenario 4: AS/400A and AS/400B Adjacent to the Host, where PS/2 is adjacent to AS/400A**

We tested the ability of the PS/2 with AS/400 PC Support to set up sessions with AS/400A and AS/400B which is situated behind the S/370 subarea network. The results are documented in Chapter 7.

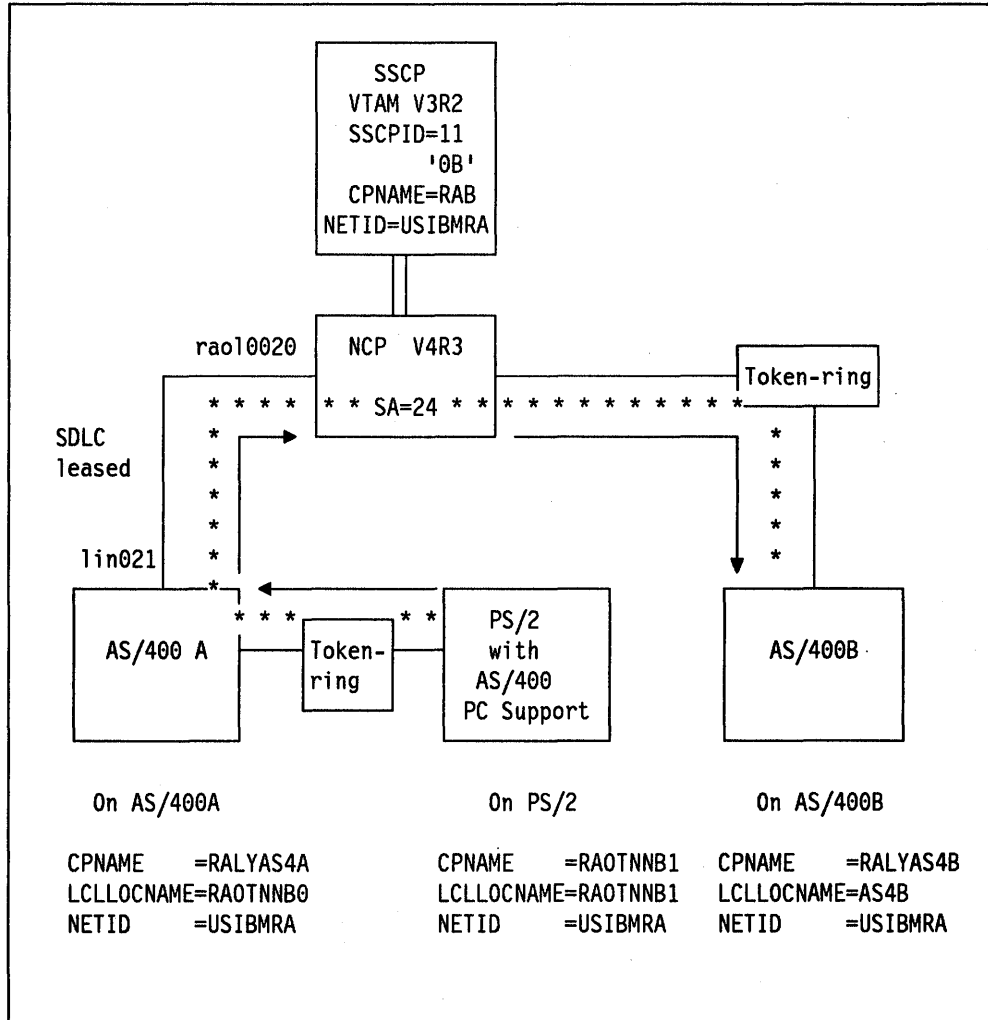


Figure 6. Scenario 4

- **Scenario 5: AS/400A and AS/400B Adjacent to the Host, where PS/2 is adjacent to AS/400A**

We tested the ability of the PS/2 with OS/2 EE 1.2 (5250 WSF) to set up sessions with AS/400A and AS/400B which is situated behind the S/370 subarea network. The results are documented in Chapter 8.

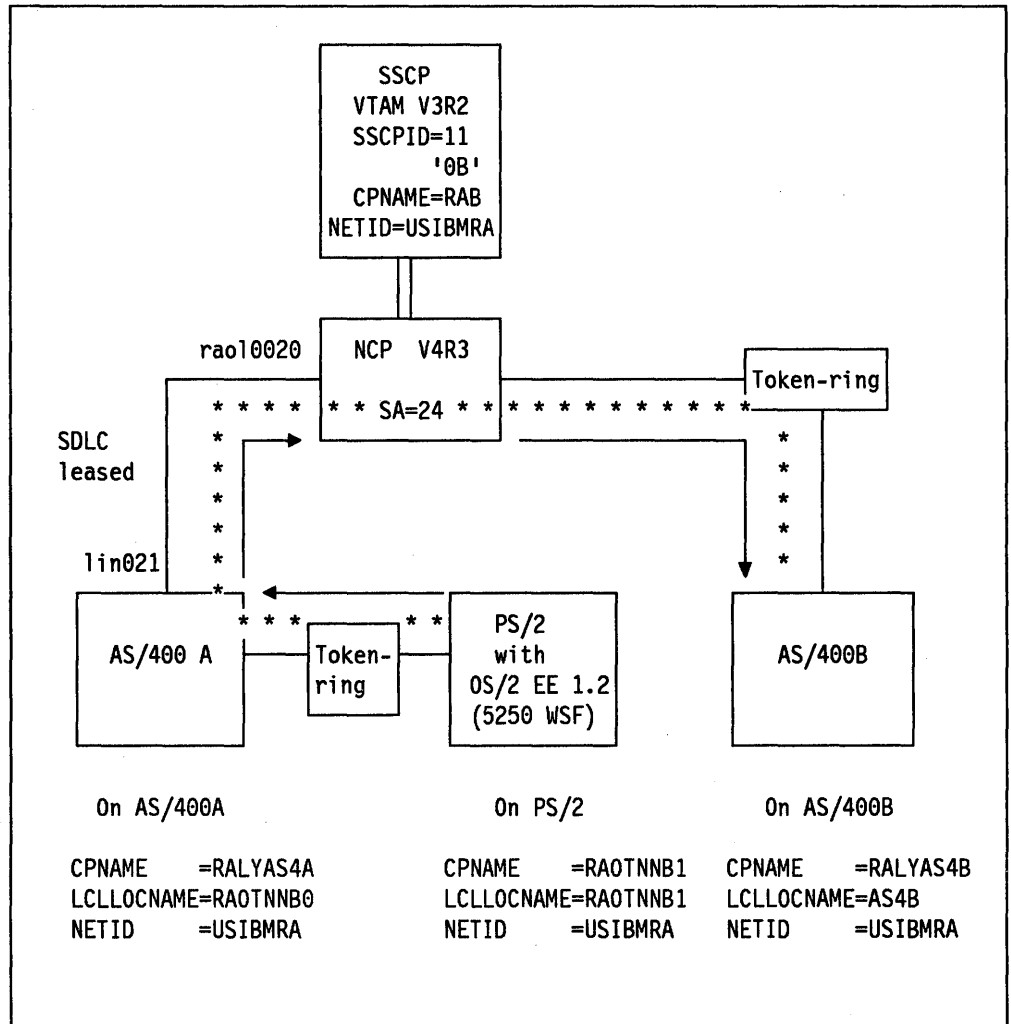


Figure 7. Scenario 5

2.0 Concepts and Products

This chapter will discuss the T2.1 support available in the following IBM systems:

- S/370
- AS/400
- S/38
- PS/2 or PC with AS/400 PC Support.

2.1 S/370 Subarea

2.1.1 Introduction

With the announcement of VTAM V3R2 and NCP V4R3/V5R2, the role of distributed systems such as the PS/2, System/36, System/38, and AS/400 has changed significantly.

Prior to this announcement, the PS/2, System/36, System/38 and AS/400 systems were defined in the subarea network as T2.0 nodes. This meant that once this node was connected to the subarea network, it was relegated to the role of a secondary logical unit and could only have a single session with an application in the subarea network. In fact, a PS/2, S/36, S/38 or AS/400, when connected to the subarea network, could not establish a session with another S/36, S/38 or AS/400 also connected to the subarea network. It could only be accomplished by connecting the systems directly. This meant that the subarea network could not be used by any of these systems (PS/2, System/36, System/38 or AS/400) to communicate with each other directly.

Now, with the announcement of T2.1 support for VTAM V3R2 and NCP V4R3/V5R2, sessions can be established between PS/2, S/36, S/38 and AS/400 systems using the S/370 subarea network.

2.1.2 Overview

With VTAM V3R2 and NCP V4R3/V5R2, a distributed system such as the PS/2, System/36, System/38, or AS/400 can be defined to the subarea as a T2.1 node. As a T2.1 node, the PS/2, System/36, System/38, and AS/400 can now fully exploit the connectivity possibilities of the subarea network. They can establish sessions with other System/36, System/38 or AS/400 using the subarea network. They are no longer relegated to the role of a secondary logical unit.

Low entry networking requires a T2.1 node to be capable of new logical, and session connectivity. The logical connectivity involves the dynamic exchange of identification information and capabilities. This is accomplished by a new format of exchange ID (XID), called XID3. This XID3 is used to exchange and negotiate node capabilities and link station role.

In this environment, sessions are established by the sending BINDs from these T2.1 nodes through the S/370 SNA subarea network, to other such T2.1 nodes, or to applications in the S/370 SNA subarea network. The need for ACTPU, ACTLU, INITSELF, or CINIT flows is eliminated. These nodes can be either

primary or secondary logical units, and can have multiple sessions with the same or different session partners. Multiple sessions with the same session partner are referred to as parallel sessions.

Because the S/370 appears as a Low Entry Network node to the T2.1 nodes directly attached, they will have only Low Entry Network node capabilities between each other. The supported attachment methods are SDLC leased or switched point-to-point lines, SDLC leased multipoint lines, token-ring LAN attachments, and X.25 NPSI.

2.1.3 Software Requirements

VTAM has to be at Version 3 Release 2 and NCP has to be at either Version 4 Release 3 or Version 5 Release 2 in order to support T2.1 nodes like the PS/2, System/36, System/38, or AS/400.

2.2 AS/400 APPN

2.2.1 Introduction

The AS/400 Advanced Peer-to-Peer Networking (APPN) support is the AS/400 implementation of extensions to the System Network Architecture (SNA) logical unit (LU) Type 6.2 and T2.1 architectures. AS/400 APPN provides the networking support that allows AS/400 to participate in and control a network of systems without requiring the network support traditionally provided by a host (S/370) system.

The AS/400, when connected to an S/370 SNA subarea network, can support both independent as well as dependent LUs on the same controller description. There is no line sharing restriction as we have with the System/36. Independent LUs to the host use LU6.2 protocol for parallel sessions between S/370 and AS/400 applications. LUs can use LU 0,1,2,3 and 6.2 protocol for single sessions between host and AS/400 applications. It depends on the application which will be used.

The AS/400 can implement the two types of APPN nodes: the AS/400 Network Node and AS/400 End node. It can also act as a Low Entry Networking node which in APPN terms is not an APPN node. Basically, the Network Node provides a full suite of AS/400 APPN functions while the End Node provides a subset of APPN functions. In particular, Low Entry Network and End nodes do not perform intermediate session routing. Please refer to Chapter 1 for more information on the supported nodes.

2.2.2 Overview

AS/400 APPN (NN) support gives you access to the full suite of APPN services:

- **Control Point Manager Services**

The control point as it relates to the AS/400 APPN support performs basically three functions. First, it is the overall manager of that node, controlling all the APPN functions and communicating with adjacent control points (CP) in other nodes. It must be noted also that the CP name uniquely identifies a node to other CPs. Secondly, it manages the CP-CP session between adjacent CPs. Finally, it controls/manages the automatic creation

of the device descriptions and attaching these definitions to the right controller.

- **Topology Routing Services**

If there are multiple routes between two locations, TRS is called upon to determine the best route to take. It must first compare information obtained from the topology data base. The topology data base contains information about nodes and links in the network and their respective characteristics. This data base is updated every time a new link is activated or deactivated. Secondly it compares this with user-defined link preferences in the Class-of-Service (COS) table to come up with the most preferred route.

- **Directory Services**

Directory Services provides a data base where all the remote and local location names are defined. So when a request is made for a location name it first checks its own directory data base and if it can't be found it will then send out a search across the network. It does this by contacting other CPs in the network until it finds that location. This search is known as a "broadcast" search. If the location name is found in the local directory data base it will send out a "directed" search to that remote CP.

- **Intermediate Routing Services**

The transport layer in the AS/400 provides the APPN support to enable non-adjacent nodes to appear adjacent, that is, perform intermediate routing for sessions for which it is not the origin or destination. This function is performed by intermediate routing services.

2.2.3 Software Requirements

The AS/400 has support for all APPN functions and node types in the Operating System/400 (OS/400) at Release 1.2 for the inclusion in an S/370 SNA subarea network.

2.3 S/38

2.3.1 Introduction

Prior to the development of PTF MT06007 (which includes a PTF for CPF and one for microcode), the S/38 was defined as a T2.0 node to a subarea network. Thus it could only support dependent LU implementation, and could only have a single session at a time with an application in the subarea network. A S/38 node could not establish a session with another T2.1 node through a subarea network.

This PTF allows the S/38 to implement the T2.1 node architecture. The S/38 now supports independent LUs and therefore can have parallel sessions and can initiate sessions to host applications and other T2.1 nodes behind a SNA S/370 subarea network.

A S/38 is a Low Entry Network node and therefore has no routing capabilities. It is always at the end of a network.

2.3.2 Overview of S/38 T2.1 Support

The S/38, when it is connected to a SNA S/370 subarea network, can support both independent and dependent LUs on the same controller. There is no line sharing restriction as we have with the System/36.

With independent LU support the S/38 can:

- Communicate with host APPC applications using parallel sessions.
- Communicate with any T2.1 node behind a S/370 subarea network, for example, from one T2.1 node to another.

With dependent LU support the S/38 can only communicate with host applications. For example:

- APPC applications (single session)
- DHCF
- SNA 3270 Device Emulation
- SNA Remote Job Entry Facility (RJEF).
- Etc.

2.3.3 Software Requirements

With CPF operating system Release 8, you must apply the following modification to have the support for independent LUs. This change is made up of two different PTFs, one for microcode and one for CPF itself. Their references are:

- CPF: APAR S339366 : fix # 18689
- Microcode: MTR MT06007: fix # T3792 (which requires Periodic 17)

2.4 PS/2 or PC with AS/400 PC Support

2.4.1 Introduction

IBM AS/400 PC Support is a software package that expands the power and the use of a personal computer by extending system resources and server functions. The implementation of the AS/400 PC Support programs are different from the PC Support programs used with System/36 and System/38.

AS/400 PC Support needs a prerequisite program on the personal computer called the router. The communications between AS/400 and a personal computer is based on APPC sessions. AS/400 PC Support provides the support in a PC or PS/2 for T2.1 nodes.

2.4.2 Overview

With AS/400 PC Support a PS/2 can be defined to the APPN network as T2.1 node. It can establish sessions with other T2.1 nodes, for example, to other AS/400's even behind the subarea network. Personal computers are no longer relegated to the role of dependent LUs to the S/370 host. AS/400 PC Support does not accept incoming BINDS or attach requests from other T2.1 nodes.

The main advantages of using AS/400 PC Support APPC support are:

- All functions, including T2.1 node implementation, are available in both environments: APPN network and subarea network.
- Multiple connectivities are supported between AS/400 and PS/2:
 - Token-ring network
 - SDLC
 - Twinax.

2.4.3 Software Requirements

- **For the AS/400 system**

AS/400 requires the Operating System/400 at Release 1.2 or later, and AS/400 PC Support (5728-PC1).

- **For the IBM PS/2 (DOS)**

PS/2 has support for T2.1 node functions with the following products:

- IBM Disk Operation System (DOS) version 3.30 or later compatible releases
- IBM Local Area Network Support Program (if the personal computer is connected to a token-ring network): P/N 83X7873.
- Note: AS/400 PC Support software packaging consists of two parts: one to be installed on the AS/400 and the other on the PS/2.

- **For the IBM PS/2 (OS/2)**

The PS/2 has support for T2.1 node functions with OS/2 Extended Edition 1.2. This release of OS/2 now includes the 5250 workstation feature (WSF) in the Communications Manager.

3.0 Network Definition Considerations

In this section we will discuss the following:

- Defining a T2.1 node to VTAM/NCP
- Defining a switched major node to VTAM
- Host routing support
- AS/400 switched line support
- Data flows between T2.1 Nodes and the Subarea
- Token-ring considerations
- X.25 considerations.

3.1 Defining a T2.1 node to VTAM/NCP

To define T2.1 nodes to a SNA S/370 host you must be familiar with the following macros and parameters in both the VTAM startup list and the NCP.

In the VTAM startup list the NETID and SSCPNAME are important.

- **VTAM Startup List**
 - SSCPNAME=RAB
This is the control point name (CPNAME) for VTAM and must match, for example, the remote CPNAME parameter you defined in the adjacent AS/400 host controller description.
 - NETID=USIBMRA
This is the network ID in which the S/370 host resides. It must match the remote NETID parameter you defined in the AS/400 host controller description.

To support an AS/400 as a T2.1 node with independent LUs, at least NCP V4R3 or NCP V5R2 is needed. Then the following NCP macros are used:

- **BUILD Macro**
 - ADDSESS=n (default=0, max=5000)
The additional number of boundary sessions that may be started through this NCP, in addition to the number of sessions defined for every independent LU by the RESSCB macro.
 - AUXADDR=n (default=0, max=5000)
The number of additional addresses for peripheral primary LUs. Each LU has automatically one address, but an independent LU, when being an PLU, would need an address for every additional session it starts. The total number of these addresses should be specified here.
 - MAXSESS=n (default=5000, min=1, max=5000)
Specifies the maximum number of sessions that each LU can have in this NCP. This value must be greater than(or equal to) any RESSCB on the LU macros.

- NAMTAB=n (default=30, min=10, max=5000)
Is specified to keep the network names table. The value should be at least the total number of networks, SSCPs and PU T2.1 nodes with which this NCP may concurrently have sessions.

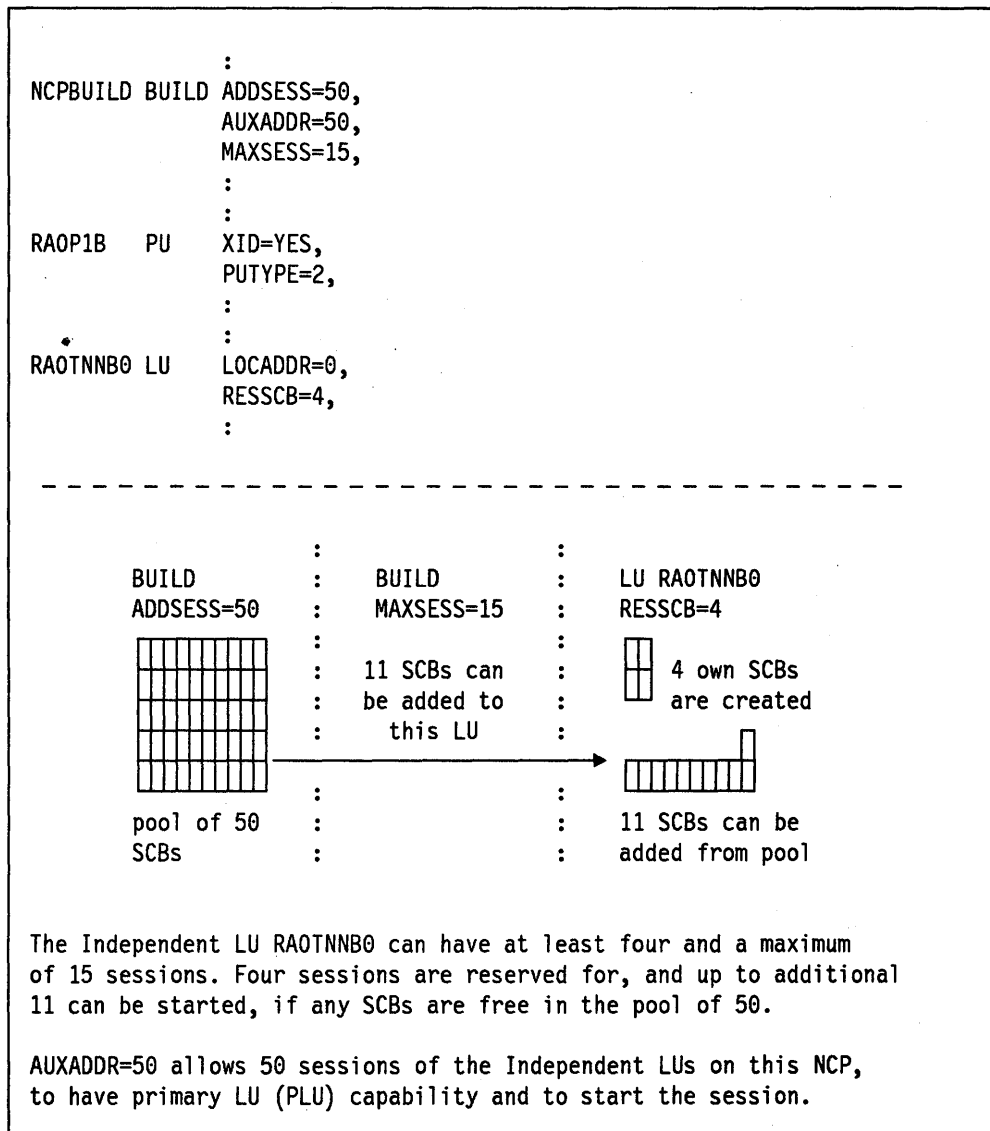


Figure 8. NCP Definitions and Number of Boundary Sessions

- **LUDRPOOL Macro**

- NUMILU=n (default=0, max=16381)
Specifies the number of independent LUs that may be added by dynamic reconfiguration.

- **PU Macro**

- XID=YES (default=YES)
Defines a PU's ability to receive and respond to an XID (exchange ID). XID=YES must be coded for PU T2.1 nodes.
- PUTYPE=2
PUTYPE=2 represents either a PU T2 or a PU T2.1.

- **LU Macro**

- **LOCADDR=0**
Defines an independent LU. Several independent LUs may be coded for a PU.
- **RESSCB=n** (default=0, max=MAXSESS)
Is to reserve session control blocks (SCB). Allocates the number of boundary sessions for this independent LU. Additional sessions may be started if ADDSESS is specified and if MAXSESS is greater than RESSCB for this LU. RESSCB cannot be greater than MAXSESS.

Figure 8 on page 26 shows the relationship between the parameters and the number of sessions possible for an independent LU.

3.2 Defining a Switched Major Node to VTAM

A switched major node contains definitions for potential switched connections. These can be switched connections to a subarea node or peripheral node, across SDLC lines, X.25 networks or token-ring networks. Remember to code **XID=YES** in the NCP PU macro for the switched line to support T2.1 nodes.

To define a switched major node to VTAM/NCP to support the AS/400 you should be familiar with the switched major node macros. Some of the important macros used are discussed below. For an extensive definition of these macros you should read *VTAM Installation and Resource Definition*.

- **VBUILD Statement**

- **TYPE=SWNET** defines a switched major node.

- **GROUP Macro**

- **DIAL=YES** specifies that the lines in this group require switched line protocols.

- **LINE Macro**

- **ANSWER=ON/OFF** specifies whether lines can be used for incoming calls. If **ANSWER=ON**, physical units can dial into VTAM when the line is activated.
- **CALL=IN/OUT/INOUT** specifies whether VTAM can initiate calls over the line. If it is only used for incoming calls code **CALL=IN**. If it is to be used for outgoing calls only code **CALL=OUT**. If it is used for both code **CALL=INOUT**.

- **PU Macro**

- **CPNAME** specifies the control point name of the remote T2.1 node. During establishment of a switched connection the CP name is used to find the PU and LU definition statements associated with this node. If you don't code the CP name here VTAM uses the IDBLK and IDNUM to verify the remote T2.1 node. Either CPNAME or both IDBLK and IDNUM are required. However, you may define all three.
- **DISCNT=(YES/NO,F/NF)**. YES/NO tells VTAM whether to physically disconnect the PU when the last logical unit terminates its session with its application program. That is, when there are no more LU-LU sessions.

For an AS/400 on a switched line, disconnection means that the dial connection is broken and the SSCP-PU session is terminated. Disconnection does not involve deactivating the PU or LUs. Therefore, when sessions are requested with those LUs again it causes the physical connection to be re-established.

- IDBLK=identification block is a three-digit hexadecimal number that denotes the remote device type. For example, the IDBLK for a S/36 is 03E, for a S/38 is 022 and for an AS/400 is 056.
- IDNUM=identification number is a five-digit number that identifies the specific remote device. The remote devices serial number is often used for the IDNUM.
- NETID=name identifies the network in which the subarea PU resides.
- PUTYPE=2 represents either T2.0 or T2.1 nodes.

- **PATH Macro**

- DIAL NO=telephone number defines the number used to dial out of VTAM/NCP. DIALNO must be specified for switched lines that can call out to a remote system. That is, lines which have CALL=OUT or IN/OUT coded in the line statement under the switched major node.

For a token-ring connection the format of the DIALNO for the system to be called is:

DIALNO=aabb4000cccccccc

- aa is the token-ring interface coupler (TIC) number of the controller.
- bb is the system-access-point address of the remote system.
- cccccccc is the last four bytes of the remote systems ring-station address.

- **LU Macro**

- LOCADDR=0 defines an independent LU.
- RESSCB=n is the number of session control blocks reserved by the NCP for the LU.

3.3 Host Routing Support

Because the S/370 host doesn't support CP-CP sessions, all the remote locations (LUs) with which it wants to have sessions with in an APPN network behind the S/370 subarea must be explicitly defined as if they were residing in the appropriate adjacent APPN node.

In the appropriate adjacent APPN node, all the locations from the APPN network must be explicitly defined in the remote location list for those locations (LUs) in the host or in the APPN nodes behind it as if they were all residing in the host. The host provides the logic to route the session through to the specified remote location.

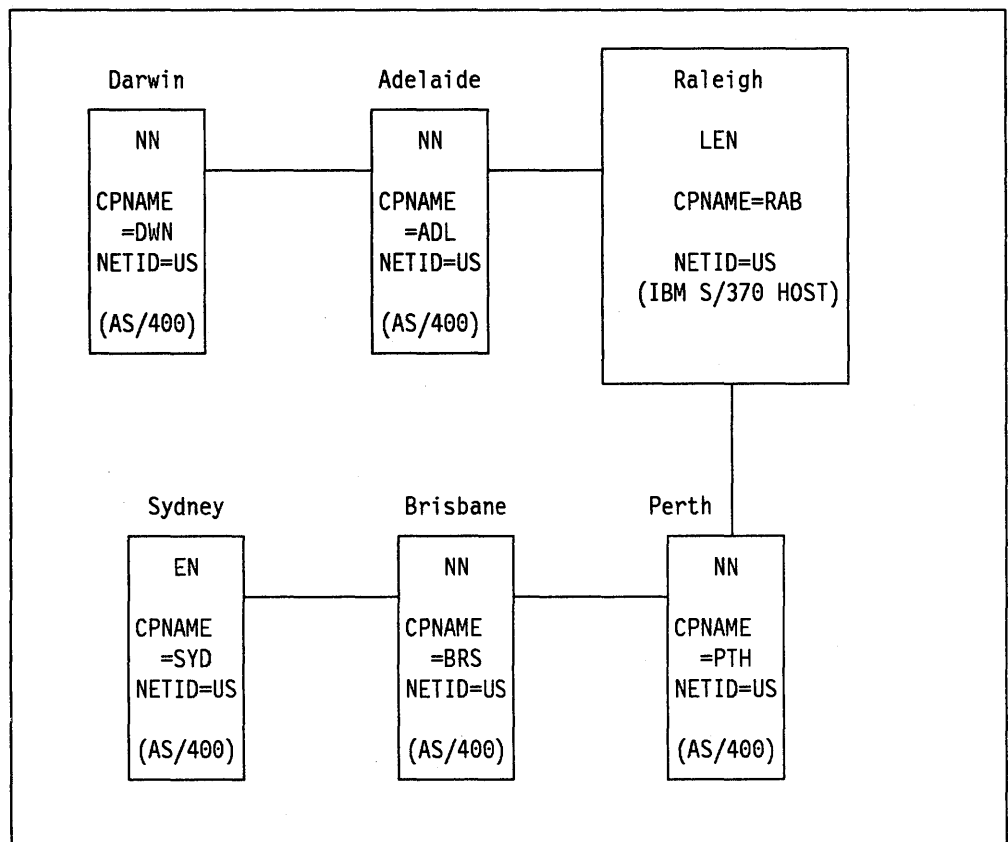


Figure 9. Advanced APPN Network including an IBM 370 Host. The host may participate in either of the two networks as a Low Entry Network node. However, the host is also capable of routing data between the two networks. The lines used are leased lines.

The one difference between a host and other Low Entry Network nodes in an APPN network is that a host is capable of performing intermediate routing between other nodes in the network.

Figure 9 describes how the host handles a request for intermediate routing.

If location US.Sydney wanted to establish a session with US.DWN, using remote location name US.Darwin, in network US, then:

1. US.PTH must have previously defined in its remote location list US.Darwin as a remote location name as if it resides in remote control point US.RAB.

This means that the remote control point name in the controller description on US.PTH that describes US.RAB must match the remote control point name in the remote location list entry for US.Darwin.

2. US.SYD will send a search request to US.BRS (the network server for US.SYD) which will search its directory data base and, if Darwin does not exist, send a broadcast search request to the network (if Darwin exists then US.BRS will send a directed request to US.PTH).
3. The search request will be returned with a positive response from US.PTH (which has Darwin configured, within its directory data base, as residing within the US.RAB).
4. An RSCV (containing routing information from US.SYD to US.RAB) will be calculated by US.BRS and returned to US.SYD.
5. US.SYD will send a BIND (with source and target names Sydney and Darwin, respectively) with the attached RSCV. The RSCV provides the routing information to enable the BIND to reach the host.
6. The host will provide a "virtual route" through which the BIND may pass to US.ADL. The host does not read the RSCV at all but must have Darwin defined as a location owned by US.ADL (since the host sees all locations in this network as being owned by US.ADL). The host must have the mode name specified which is in the BIND.
7. US.ADL will send either a directed or broadcast search, depending on the directory information in US.ADL in order to locate the location Darwin and will receive a positive response from US.DWN.
8. US.ADL creates a new RSCV which specifies the route information for the completion of the session establishment.

Note: The session request from Sydney to Darwin actually consisted of an RSCV from US.SYD to US.RAB, a virtual route through the host network(s) (one or more VTAMs and NCPs), and an RSCV from US.ADL to US.DWN.

Note: If the network identifier is different on both sides of the host then SNI gateway had to be used. VTAM will verify the NETID during XID.

3.3.1 Generic Location Routing

- **Generic Location Naming**

Within a host there are usually a large number of LUs to define. Because the host appears as a Low Entry Network node, all the location (LU) names must be defined in the adjacent APPN node to the host for all the locations residing in this APPN network which may request sessions with locations in the host or behind it. Generic location naming on the AS/400 allows you to configure a location name ending with an asterisk (*). This implies that any location name starting with the same characters proceeding the * will match this entry. This function is not available on the PS/2 or S/38.

For example, Perth NN in Figure 10 on page 31 can configure the remote location names for Darwin (DRW1, DRW2 and DRW3) as one single entry of DRW* in its APPN remote location list. Then all session requests for locations beginning with DRW will be routed there. The same can be done with the other locations.

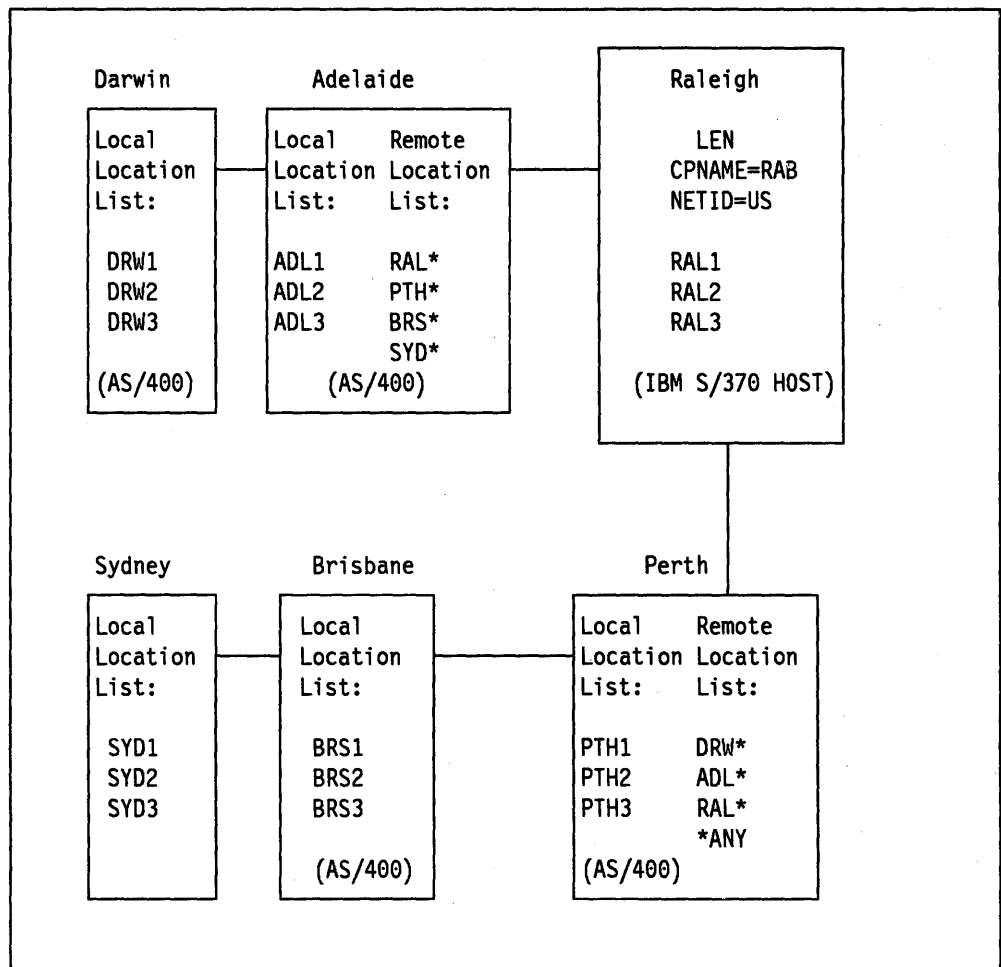


Figure 10. Advanced APPN Network including an IBM 370 Host

• Wildcard Routing

Wildcard routing allows you to specify *ANY as a location name in a remote location list. This means that when a session is requested for a location that does not match an explicit entry or a generic location name anywhere in the network, then that location will be assumed to reside in the control point associated with the *ANY entry.

There are some rules that need to be adhered to when using wildcard routing. These are:

- Only one wildcard entry can be defined in the same APPN network.
- A wildcard entry can only be specified for an adjacent node.

The use of "wildcards" are appropriate when you want to connect an IBM 370 host to an APPN network, because you may have many location names to be explicitly configured by the adjacent network node.

3.4 AS/400 Switched Line Support

There are some considerations that need to be made when switched lines are used across an APPN and S/370 SNA subarea networks. Remember that when we talk about switched lines we also include token-ring and X.25 switched virtual circuits.

Below we will look at these considerations:

3.4.1 AS/400 Automatic Disconnect

The automatic disconnection of switched lines occur when there are no sessions active for a particular controller. When you create your controller description for a switched connection you should be familiar with the following parameters:

- **APPN CP session support (CPSSN)** specifies whether a CP-CP session is allowed across a transmission group. If the XID is successful and you have CPSSN(*YES), a CP-CP session will be established when the line and controller descriptions are varied on. Once established the number of active sessions using this transmission group will never fall to zero because the CP-CP session will always be active.
- **Switched line disconnect (SWTDSC)** will enable a switched line to automatically disconnect when the number of sessions across the transmission group falls to zero. Even with this parameter defined as (*YES) it is possible that the line will not disconnect because of the active session caused by CPSSN(*YES). This is not a concern when an AS/400 is connected to a S/370 SNA subarea as no CP-CP session is supported. Therefore, this parameter will be very important to help cut switched line costs, where no CP-CP sessions are requested.
- **APPN disconnect timer (DSCTMR)** specifies the amount of time in milliseconds an APPC controller must wait before it automatically disconnects. The timer is started when the switched connection is established, and when the time has elapsed the system will check to see that there are no active sessions and, if not, disconnect the switched line. If sessions are still active when the time has elapsed, the line will disconnect when all active sessions are ended.

3.4.2 AS/400 Manual Dial

A connection for the manual dial switched line is used when the system starts the switched line connection and the automatic dial capability does not exist for that line. When you create the line description for the switched line you need to code AUTODIAL(*NO) and SWTCNN(*BOTH) or (*DIAL). When you create your controller you should be aware of the following parameters:

- **SWITCHED(*YES)** specifies that you are using a switched connection.
- **SWTLINLST(name)** specifies the existing line descriptions to be used.
- **EXCHID(05622222)** identifies the remote controller during XID processing.
- **INLCNN(*DIAL)** specifies that a dial connection is to be used. This does not prevent either manual or automatic answer connection methods.
- **CNNNBR(234-5678)** specifies the telephone number the operator must dial.

3.4.3 AS/400 Automatic Dialing

The AS/400 will use the automatic dial function whenever the AUTODIAL(*YES) and SWTCNN(*BOTH) or (*DIAL) is defined in the line description.

If the controller description is created with INLCNN(*DIAL), you must also attach an autodial unit to the line.

3.4.4 AS/400 Manual and Automatic Answer

When a remote system dials into an AS/400, the AS/400 can either manually or automatically answer the call. When you create the line description you must specify AUTOANS(*NO), SWTCNN(*BOTH) or (*ANS) for manual answer and AUTOANS(*YES) for automatic answer.

When you define INLCNN(*ANS) in the controller it will depend on how you have defined your line as to whether it will manually answer or automatically answer.

3.5 XID3 Exchange

3.5.1 Contents of XID3 Exchanged between NCP and AS/400

The following is a summary of the XID3 that is exchanged during PU activation on the AS/400 and NCP. The AS/400 XID3 would look different if the remote system were defined as peer or as host. Some of these values are defined in the IBM software and cannot be changed. Some are under user control and when specified in the VTAM/NCP and AS/400 definitions these values must be compatible.

Contents	Sent from AS/400 to NCP	Sent from NCP to AS/400
XID3 Format	PU Type 2 or 2.1	PU Type 4
XID3 node characteristics	INIT-SELF may not be sent to XID sender send ACTPU	XID sender cannot receive BIND PIU segments
XID negotiation	Negotiation proceeding	Negotiation proceeding
TG BIND pacing support	Full support of adaptive BIND pacing	One-way adaptive BIND pacing supported
L/S Role	Secondary link station	Primary link station
Trans/Recv. Capability	Two-way alternating (HDX)	Two-way simultaneous (FDX)
Max. BTU length	X'0109' = 265 bytes	X'13DA' = 5082 bytes
Modulo	8	8
Max.I-frame	7	7
Network Name Control Vector	CPNAME=USIBMRA.RALYAS4A Link Station Name = RAB	CP name = USIBMRA.RAB PU name = NCPA Link Station Name = RAOP1B

Figure 11. XID3 Contents

3.6 Token-Ring Considerations

The IBM token-ring LAN (TRLAN) physical interface is a supported interface between an S/370 host, AS/400 and the PS/2 so they may be nodes and stations on a TRLAN. The S/38 does not support the TRLAN interface.

The TRLAN is an any-to-any interface and the first thought you might come up with is why use APPN here because the intermediate routing of APPN becomes redundant in a TRLAN (all nodes in a TRLAN network may be considered adjacent). However, APPN provides other benefits which may be used in conjunction with TRLAN:

- Automatic configuration and activation of all peer devices in the network.
- Multiple location names (defined at local nodes only) and automatic searches (by remote nodes) when a session is requested to a particular location name.
- Intermediate routing through a host to another APPN network.
- Transmission priority.

These APPN functions are only provided by AS/400; however, when an S/38, PS/2 and host are attached, the AS/400 can still use the benefits of it.

3.7 X.25 Considerations

Besides the benefits of using a PSDN, the considerations in using X.25 together with APPN are more or less the same as for TRLAN.

4.0 Scenario 1: AS/400 and S/38 Adjacent to the Host

4.1 Environment Tested

In this chapter we will describe the definitions required to connect an AS/400 (via a switched line) and a S/38 (via a leased line) to a S/370 subarea network. We will also describe how multiple sessions can be established between the AS/400 and S/38 when they are connected to a S/370 subarea network.

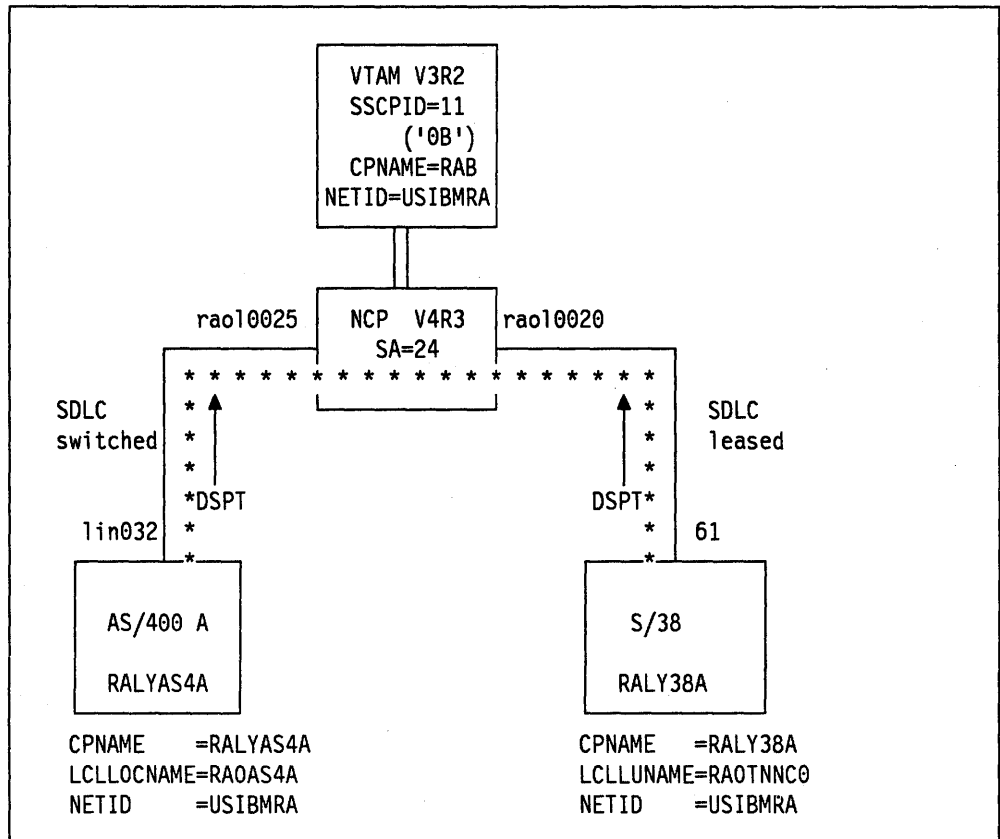


Figure 12. Network Diagram for Scenario 1

We tested the following:

- **Test 1: CPNAME/IDBLK/IDNUM**

In VTAM V3R2 there is a new parameter when defining a VTAM switched major node definition for the PU macro called CPNAME. The CPNAME can be used to identify a T2.1 node to VTAM. It is passed from the T2.1 node to VTAM during the establishment of a switched connection. If the CPNAME is not coded in the switched major node definition, VTAM will use the traditional IDBLK and IDNUM parameters for switched line establishment.

We tested the use of the CPNAME by connecting an AS/400 to the host via a SDLC switched line. We didn't use either the IDBLK or IDNUM parameters. In a T2.1 environment we recommend you use only the CPNAME when you are connecting APPN nodes to other APPN nodes or to a S/370 which is a Low Entry Network node. However, if you do wish to use both CPNAME and

IDBLK/IDNUM then they must match the corresponding parameters on the AS/400.

- **Test 2: Switched Disconnect**

When you create the S/370 host controller description on the AS/400 you have the option to define "switched disconnect" as *YES. This means when there are no active sessions on the line it will disconnect. This will leave the line on the AS/400 in "Connect Pending" state and the controller and devices to a "Vary on Pending" state.

We utilized this parameter when we defined the AS/400 switched connection to the S/370 host. When there are no active sessions on the line the AS/400 will send a "REQDISCONT" to NCP who will then start de-activating the LUs and finally the PU.

- **Test 3: SSCPID**

In this test we looked at the role of the SSCPID in the exchange identification (XID) sequence for switched connections. When you define the S/370 host controller description on the AS/400, you can have the "APPN node type" parameter set to *LENNODE (LEN), *ENDNODE (EN) or *NETNODE (NN). The AS/400 forced you to define an SSCPID when you defined the node type as Low Entry Network node but was not required for the node type of NN or EN. If you do define the SSCPID on the AS/400 then it is checked by VTAM at remote system identification sequence time and must match the SSCPID coded in the VTAM startup list.

- **Test 4 S/38 PTF**

We tested the S/38 PTF which allows the S/38 to support and initiate independent sessions to other T2.1 nodes behind the S/370 subarea network.

- **Test 5 Display Station Passthrough (DSPT)**

Once the network was set up we used DSPT to establish multiple sessions between the S/38 and AS/400. We initiated sessions from both the AS/400 and S/38.

This chapter will take you through the definition process, screen by screen. We have done this purely for presentation purposes only and would strongly recommend you create CL programs for creating your definitions. Examples of the CL programs are in Chapter 7 "Definitions".

4.2 Definitions on the AS/400 (RALYAS4A)

When you are going to configure an AS/400 as an APPN node to communicate to a S/370 subarea network you are required to perform the following steps:

- Check the network attributes
- Create line description from the AS/400 to VTAM/NCP
- Create a host controller description for the S/370 host on the AS/400
- Create an entry in both the local and remote location lists
- Create a mode description.

4.2.1 Network Attributes

The network attributes contain the AS/400's local system values for APPN. You can display these attributes by using the DSPNETA command or by going to menu "NETWORK".

MAIN

AS/400 Main Menu

System: RALYAS4A

Select one of the following:

1. User tasks

2. Office tasks

3. General system tasks

4. Files, libraries, and folders

5. Programming

6. Communications

7. Define or change the system

8. Problem handling

9. Display a menu

90. Sign off

Selection or command

==> dspneta

F3=Exit

F4=Prompt

F9=Retrieve

F12=Previous

F13=User support

F23=Set initial menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 13. AS/400 Main Menu Screen

Type DSPNETA to display the network attributes.

Display Network Attributes		System: RALYAS4A
Current system name	:	RALYAS4A
Pending system name	:	
Local network ID	:	USIBMRA
Local control point name	:	RALYAS4A
Default local location	:	RALYAS4A
Default mode	:	MODS361
Maximum number of conversations for a remote		
location	:	64
APPN node type	:	*NETNODE
Maximum number of intermediate sessions	:	200
Route addition resistance	:	128
Server network ID/control point name	:	
		More...
Press Enter to continue.		
F3=Exit F12=Previous		

Figure 14. Display Network Attributes Screen

Notice we have defined the local control point name, local network ID, default location name and APPN node type. You can change these parameters by the CHGNETA command or by taking option 2 from the "Display Network Attributes" menu.

Display Network Attributes		System: RALYAS4A
Alert status	:	*UNATTEND
Alert primary focal point	:	*NO
Alert default focal point	:	*NO
Alert logging status	:	*ALL
Alert controller description	:	P24025D
Message queue	:	QSYSOPR
Library	:	QSYS
Output queue	:	QPRINT
Library	:	QGPL
Job action	:	*FILE
Maximum hop count	:	16
DDM request access	:	*OBJAUT
PC Support request access	:	*OBJAUT
Press Enter to continue.		
F3=Exit F12=Previous		

Figure 15. Display Network Attributes Screen, (continued)

The alert controller description "P24025D" is the description which can be used to send alerts originating from the APPN network to NetView. Because this controller is attached to a switched line, the alerts will be held until the line becomes active. For more information on sending alerts to the host see *Management of AS/400 in SNA Subarea Network using NetView Products*.

4.2.2 Create Line Description

The first step in defining an AS/400 to a S/370 subarea network is to create the line description. You can do this by either following the screens documented or by using the CL command CRTLNSDLCL.

MAIN	AS/400 Main Menu	System: RALYAS4A
Select one of the following:		
<ol style="list-style-type: none"> 1. User tasks 2. Office tasks 3. General system tasks 4. Files, libraries, and folders 5. Programming 6. Communications 7. Define or change the system 8. Problem handling 9. Display a menu 		
90. Sign off		
Selection or command		
====> 6		
F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support F23=Set initial menu		
(C) COPYRIGHT IBM CORP. 1980, 1988.		

Figure 16. AS/400 Main Menu Screen

Select option 6 in Figure 16.

CMN	Communications	System: RALYAS4A
Select one of the following:		
<ol style="list-style-type: none"> 1. Communication status 2. Messages 3. Remote jobs 4. Configure communications 5. Network management 6. Network configuration 7. Verify communications 8. Send or receive files 9. Jobs 		
70. Related commands		
Selection or command		
====> 4		
F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support F16=System main menu		
(C) COPYRIGHT IBM CORP. 1980, 1988.		

Figure 17. Communications Screen

Select option 4 in Figure 17 to configure communications.

```

CFGCMN          Configure Communications and Remote Hardware
                                     System:  RALYAS4A
Select one of the following:

    1. Lines
    2. Communications controllers
    3. Work station controllers
    4. Communications devices
    5. Printers
    6. Display stations
    7. Modes
    8. Classes-of-service
    9. Configure address and location lists

Selection or command
====> 1

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu
                                     (C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 18. Configure Communications and Remote Hardware Screen

Select option 1 in Figure 18 to define your line description.

```

                                     Work with Line Descriptions
                                     System:  RALYAS4A
Position to . . . . . Starting character(s)

Type options, press Enter.
    2=Change  3=Copy  4=Delete  5=Display  6=Print

Opt  Line      Type      Text
    L24020     *SDLC     SNA/SDLC Leased to SA24
                                     More...

Parameters for option 2 or command
====>

F3=Exit  F4=Prompt  F5=Refresh  F6=Create  F9=Retrieve  F12=Previous
F14=Work with status
                                     (C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 19. Work with Line Descriptions Screen

Select option F6 in Figure 19 to create the line description.

```

                                     Create Line Description

Type choices, press Enter.

New line description      124025      Name
Line type . . . . . *sdlc
                                     *ASNC=Asynchronous communications
                                     *BSC=Binary synchronous communications
                                     *SDLC=Synchronous data link control
                                     *TDL=Twisted pair data link control
                                     *TRLAN=Token-Ring local area network
                                     *X25=X.25 communications network

F3=Exit  F12=Previous

```

Figure 20. Create Line Description Screen

The line type we are using is *SDLC.

CRTLINS DLC		Create Line Desc (SDLC)	
Type choices, press Enter.			
Label		Name	
Line description	> L24025	Name	
Resource name	> LIN032		
Online at IPL	> *NO	*YES, *NO	
Data link role	> *SEC	*NEG, *PRI, *SEC	
Physical interface	*RS232V24	*RS232V24, *V35, *X21...	
Connection type	> *SWTPP	*NONSWTPP, *SWTPP, *MP	
			Bottom
F3=Exit	F4=List	F5=Refresh	F10=Additional parameters
F12=Previous		F13=How to use this display	F11=Keywords

Figure 21. Create Line Desc (SDLC) Screen

The resource name is the name of the physical communications port on AS/400. It can be found with the command WRKHDWPRD using the "work with the rack configuration" option.

The data link role is always *SEC when the AS/400 is connected to a S/370 host.

We will be using a switched line so the connection type will be *SWTPP.

In Figure 22 we will be initiating the manual call to the host so we define autocall unit *NO and autodial *NO.

CRTLINS DLC		Create Line Desc (SDLC)	
Type choices, press Enter.			
Label		Name	
Line description	> L24025	Name	
Resource name	> LIN032		
Online at IPL	> *NO	*YES, *NO	
Data link role	> *SEC	*NEG, *PRI, *SEC	
Physical interface	*RS232V24	*RS232V24, *V35, *X21...	
Connection type	> *SWTPP	*NONSWTPP, *SWTPP, *MP	
Vary on wait	*NOWAIT	*NOWAIT, 15-180 (1 second)	
Autocall unit	*NO	*NO, *YES	
Exchange identifier	> *SYSGEN	05600000-056FFFFF, *SYSGEN	
NRZI data encoding	*YES	*YES, *NO	
Line speed	9600	600, 1200, 2400, 4800...	
Modem type supported	*NORMAL	*NORMAL, *V54, *IBMWRAP...	
Switched connection type	*BOTH	*BOTH, *ANS, *DIAL	
Autoanswer	*YES	*YES, *NO	
Autodial	*NO	*NO, *YES	
			More...
F3=Exit	F4=List	F5=Refresh	F10=Additional parameters
F12=Previous		F13=How to use this display	F11=Keywords

Figure 22. Create Line Desc (SDLC) Screen (continued)

The "Exchange identifier" parameter is not needed any more as VTAM V3R2 can also use the CPNAME in the controller description for switched line verification. Therefore, we see no reason to define IDNUM or IDBLK in the VTAM switched major node definition in a T2.1 environment.

NRZI data encoding should match your NRZI parameter in the VTAM definitions.


```

CRTLINS DLC          Create Line Desc (SDLC)

Type choices, press Enter.

Station address . . . . . > 01          01-FE
Maximum frame size . . . . . > 265      265, 521, 1033, 2057
Duplex . . . . . > *HALF              *HALF, *FULL
Inactivity timer . . . . . 300         *NOMAX, 150-4200 (0.1 sec)
Poll response delay . . . . . 0        0-2048 (0.0001 seconds)
Text 'description' . . . . . > 'SNA/SDLC Switched to SA24'

Comment . . . . .

F3=Exit  F4=List  F5=Refresh  F10=Additional parameters  F11=Keywords
F12=Previous  F13=How to use this display

```

Figure 23. Create Line Desc (SDLC) Screen, (continued)

In our scenario the AS/400 is defined as secondary on a switched line and should therefore be defined as *HALF duplex.

Press enter to create your line description to the host. It will return you to the Work with Line Descriptions Menu.

4.2.3 Create Host Controller Description

Now you must create a host controller description which describes the S/370 host you are connecting to. Again, you can follow the screens or enter the CL command CRTCTLHOST.

```
CFGCMN          Configure Communications and Remote Hardware
                                     System:  RALYAS4A
Select one of the following:

1. Lines
2. Communications controllers
3. Work station controllers
4. Communications devices
5. Printers
6. Display stations
7. Modes
8. Classes-of-service
9. Configure address and location lists

Selection or command
====> 2

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu
```

Figure 24. Configure Communications and Remote Hardware Screen

Select option 2 in Figure 24 to configure the host controller.

```
                                Work with Controller Descriptions
                                     System:  RALYAS4A
Position to . . . . . Starting character(s)

Type options, press Enter.
  2=Change  3=Copy  4=Delete  5=Display  6=Print

Opt  Controller  Type  Text
QESCTL  *HOST  Service Support controller
QTICTL  *HOST  TIE, TIA, QA control unit description
RSCSCTL  *BSC  Ctl description for RSCS/PROFS Bridge
More...

Parameters for option 2 or command
====>
F3=Exit  F4=Prompt  F5=Refresh  F6=Create  F9=Retrieve  F12=Previous
F14=Work with status
```

Figure 25. Work with Controller Descriptions Screen

Select F6 to create your host controller description.

Create Controller Description		
Type choices, press Enter.		
New controller description	p24025d	Name
Controller type/class	*host	*APPC=Advanced program-to-program communications *ASYN=Asynchronous communications *BSC=Binary synchronous communications *FNC=Finance *HOST=SNA host
F3=Exit F12=Previous		

Figure 26. Create Controller Description Screen

Because this controller should be used by independent and dependent LUs we have to define the controller type as *HOST. However, it is possible to define the controller type to the host as *APPC but then this controller just supports independent LUs and cannot have dependent sessions with the host for example, alerts, 3270EM, RJEF. Recommended is controller type *HOST.

CRTCTHHOST Create Ctl Desc (SNA Host)		
Type choices, press Enter.		
Label		
Controller description	> P24025D	Name
Link type	> *SDLC	*SDLC, *TRLAN, *X25
Online at IPL	> *NO	*YES, *NO
Switched line	> *YES	*NO, *YES
APPN capable	> *YES	*YES, *NO
Switched line list	> L24025	Name
+ for more values		
Maximum frame size	> 265	*LINKTYPE, 265, 521, 1033...
Remote network identifier . . .	> USIBMRA	Name, *NETATR, *NONE
Remote control point name . . .	> RAB	Name
SSCP identifier	> 050000000000B	050000000000-05FFFFFFFF
Initial connection	> *DIAL	*DIAL, *ANS
Connection number	> 2401	
Station address	> 01	01-FE
APPN CP session support	> *NO	*YES, *NO
More...		
F3=Exit F4=List F5=Refresh F10=Additional parameters F11=Keywords		
F12=Previous F13=How to use this display		

Figure 27. Create CTL Desc (SNA Host) Screen

In Figure 27 we will be defining "APPN capable" as *YES. The host device descriptions for independent LUs will be automatically created, varied on and attached to the right controller using the information defined in the network attributes, the associated mode description, the location list and the application program. It also means that the local system will appear as an End Node or Networ Node to the adjacent system.

The line name "L24025" is the line to be used with this controller description.

The remote network identifier, remote control point name and SSCP identifier must match those defined in the VTAM startup list. Remember that the S/370 subarea does not support CP-CP sessions so you must define "APPN CP session support" as *NO.

The station address must match the PU address in the VTAM switch major node PU macro.

CRTCTLHOST

Create Ctl Desc (SNA Host)

Type choices, press Enter.

APPN node type > *LENNODE *ENDNODE, *LENNODE...

APPN transmission grp number . . 1 1-20, *CALC

Text 'description' > 'SNA CTL/PU on L24025'

Additional Parameters

Switched disconnect > *YES *NO, *YES

Comment

F3=Exit F4=List F5=Refresh F10=Additional parameters F11=Keywords

F12=Previous F13=How to use this display

Bottom

Figure 28. Create Ctl Desc (SNA Host) Screen (continued)

A S/370 is defined as a *LENNODE in an APPN network. If you define APPN node type as *ENDNODE you don't have to define the SSCP identifier in Figure 27 on page 46. We recommend that you define the APPN node type as *LENNODE because in an APPN environment the S/370 is a Low Entry Network node.

Remember to press F10 for additional parameters so you can define the switched disconnect parameter. Switched disconnect *YES means that the line will be disconnected when there are no active sessions on the line.

Press Enter to create your host controller description.

4.2.4 Configure Local and Remote Location Lists

Since we defined our host controller with APPN(*YES), device descriptions will be automatically created for independent LUs. This also applies to the remote locations behind a S/370 subarea network which are defined in the APPN remote location list. After the automatic creation of the devices the AS/400 will vary them on and attach them to the correct controller in the following situations:

- When a session is requested and the route chosen and the controller description doesn't already have a device description with the specified remote location name, remote NETID and local location name defined.
- When a BIND is received for a local location and the controller description doesn't already have a device description with the specified remote location name, remote NETID and local location name defined.

AS/400 APPN usually doesn't require remote locations to be defined as this information is dynamically acquired through the network. However, when the AS/400 is connected to a Low Entry Network node (for example an S/370), entries need to be added in the remote location list for each LU with which we want to have sessions with, in the host or behind it. This information can't be obtained dynamically because the S/370 host doesn't support CP-CP sessions. Figure 29 will guide you through the creation of this APPN remote location list.

CFGCMN

Configure Communications and Remote Hardware

System: RALYAS4A

Select one of the following:

1. Lines

2. Communications controllers

3. Work station controllers

4. Communications devices

5. Printers

6. Display stations

7. Modes

8. Classes-of-service

9. Configure address and location lists

Selection or command

===> 9

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support

F16=System main menu

Figure 29. Configure Communications and Remote Hardware Screen

Select option 9 in Figure 29 to configure the location lists.

CFGLST		Configure Address and Location Lists		System: RALYAS4A	
Select one of the following:					
1. Asynchronous PAD network address lists 2. Asynchronous remote location list 3. APPN local location list 4. APPN remote location list					
Selection or command					
===> 4					
F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support F16=System main menu					

Figure 30. Configure Address and Location Lists Screen

Select option 4 in Figure 30 to configure the remote location list.

Work with Configuration Lists		System: RALYAS4A	
Position to		Starting character(s)	
Type options, press Enter.			
2=Change 4=Delete 5=Display 6=Print			
Opt	List	Type	Text
2	QAPPNRMT	*APPNRMT	APPN remote list
			Bottom
Parameters for option 2 or command			
===>			
F3=Exit F4=Prompt F5=Refresh F6=Create F9=Retrieve F12=Previous (C) COPYRIGHT IBM CORP. 1980, 1988.			

Figure 31. Work with Configuration Lists Screen

Select option 2 in Figure 31 to change the already created APPN remote location list.

Define APPN Remote Locations						
Type new/changed information, press Enter.						
Remote Location Name	Remote Network ID	Local Location Name	Control Point Name	Control Point Net ID	Location Password	Secure Loc *NO More...
RAOTNNC0	USIBMRA	RAOAS4A	RAB	USIBMRA		
F3=Exit F11=Additional information F12=Previous F17=Top of list F18=Bottom of list						

Figure 32. Define APPN Remote Locations Screen

If we look at Figure 32 then we see the following: RAOTNNC0 is the remote location name for the S/38. Because the AS/400 and S/38 are communicating through the host (which is a Low Entry Network node but with routing capabilities), the LUs have to be defined on both sides of the line. This means that RAOTNNC0 must match the LU name defined in the NCP for the S/38 leased

line and also must match the local location name in the S/38 device description. The AS/400 "thinks" that any remote location resides in the host, therefore the control point name and NETID must match the SSCPNAME and NETID in the VTAM startup list. The local location name must match the LU name in the switched major node LU macro for this AS/400.

The local location list defines the locations that are residing on this AS/400. The following screens will add RAOAS4A to the list.

```

CFGLST                Configure Address and Location Lists                System:  RALYAS4A
Select one of the following:

    1. Asynchronous PAD network address lists
    2. Asynchronous remote location list
    3. APPN local location list
    4. APPN remote location list

Selection or command
===> 3

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 33. Configure Address and Location Lists Screen

Select option 3 in Figure 33 to configure an entry in the local location list.

```

                                Work with Configuration Lists                System:  RALYAS4A
Position to . . . . .          Starting character(s)

Type options, press Enter.
    2=Change  4=Delete  5=Display  6=Print

Opt  List      Type      Text
 2  QAPPNLCL   *APPNLCL

Parameters for option 2 or command
===>

F3=Exit  F4=Prompt  F5=Refresh  F6=Create  F9=Retrieve  F12=Previous
(C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 34. Work with Configuration Lists Screen

Select option 2 in Figure 34 to add RAOAS4A to the local location list.

Define APPN Local Locations

Type new/changed information, press Enter.

Local Location	Entry Name Description	Local Location	Entry Name Description
RAOAS4A	Local LU Name switch		
RAOTNNB0	Local LU for leased		

More...

F3=Exit F12=Previous F17=Top of list F18=Bottom of list

Figure 35. Define APPN Local Location List Screen

Enter the local location name and its description. RAOAS4A must match the LU name which is defined in the VTAM switched major node LU macro for the AS/400.

4.2.5 Create Mode Description

The mode description describes the session characteristics and number of sessions that will be used to negotiate the allowable values between the local and remote locations. A mode with the same name must exist at both end points. There must also be a mode entry with the same name in VTAM/NCP.

```
CFGCMN          Configure Communications and Remote Hardware
                                     System:  RALYAS4A
Select one of the following:

    1. Lines
    2. Communications controllers
    3. Work station controllers
    4. Communications devices
    5. Printers
    6. Display stations
    7. Modes
    8. Classes-of-service
    9. Configure address and location lists

Selection or command
===> 7

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu
```

Figure 36. Configure Communications and Remote Hardware Screen

Select option 7 in Figure 36 to work with mode descriptions.

```
                                Work with Mode Descriptions
                                     System:  RALYAS4A
Position to . . . . . Starting character(s)
Type options, press Enter.
    2=Change  3=Copy  4=Delete  5=Display  6=Print

Option   Mode      Text
#BATCH   This Mode is IBM Supplied
#BATCHSC This Mode is IBM Supplied
#INTER   This Mode is IBM Supplied
#INTERSC This Mode is IBM Supplied
BLANK    This Mode is IBM Supplied
More...

Parameters for option 2 or command
===>
F3=Exit  F4=Prompt  F5=Refresh  F6=Create  F9=Retrieve  F12=Previous
(C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 37. Work with Mode Descriptions Screen

Select F6 in Figure 37 to create a mode description MODS361.

CRTMODD
Create Mode Description

Type choices, press Enter.

Mode description	mods361	Name
Maximum sessions	8	1-512
Maximum conversations	8	1-512
Locally controlled sessions . .	4	0-512
Pre-established sessions	0	0-512
Inbound pacing value	7	0-63
Outbound pacing value	7	0-63
Max length of request unit . . .	*CALC	*CALC, 241, 245, 247, 256...
Text 'description'	Mode for USIBMRA network	

Bottom

F3=Exit F4=List F5=Refresh F10=Additional parameters F11=Keywords

F12=Previous
F13=How to use this display

Figure 38. Create Mode Description Screen

The parameters defined here must match those defined on the remote location. Pre-established sessions must be "0" so that the switched disconnect parameter defined in the host controller description can work. You can define a different COS table than #CONNECT by pressing F10. If not it will default to #CONNECT.

4.3 Relationship between AS/400 and VTAM/NCP for a Switched Line

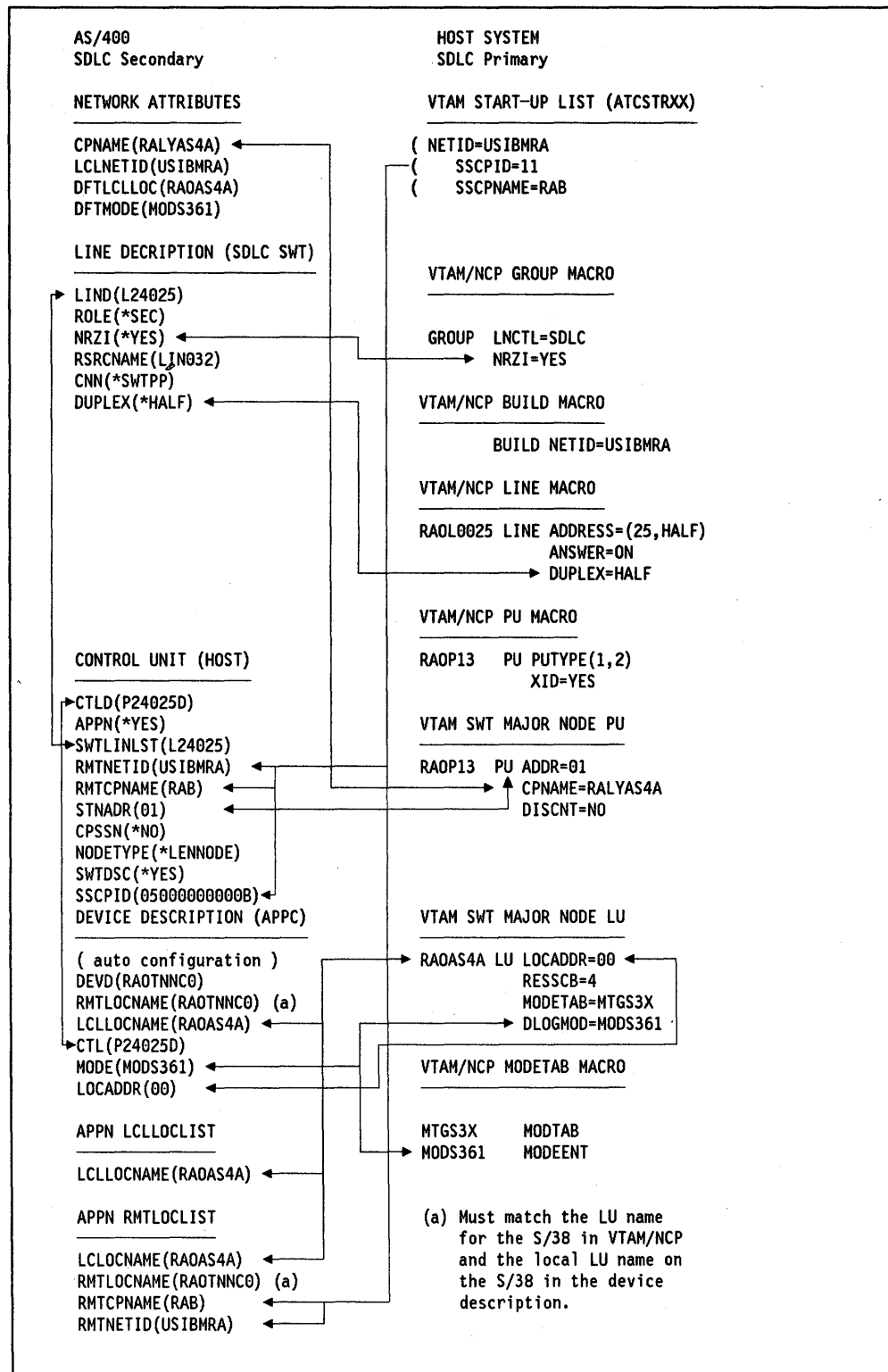


Figure 39. Defining a switched link between AS/400 and VTAM/NCP

4.4 Definitions on the S/38 (RALY38A)

When you configure an S/38 to communicate with the AS/400 behind the S/370 subarea network you need to create the following:

- A line description from the S/38 to the host.
- A control unit description for the S/370 on the S/38.
- A device description for the AS/400 on the S/38.
- A mode description for the device.
- A communications entry in the subsystem you are using for the device.

For information on setting up DSPT on the S/38 refer to *S/38 CPF Programmer's Guide*.

4.4.1 Create Line Description

To configure the S/38 to the network you must first create a line description from the S/38 to the S/370 host. You can do this by entering the CL command CRTLIND + CMD 4 to prompt the parameters.

```
      Create Line Description (CRTLIND) Prompt      +++
Enter the following:
Label:
Line description name:      LIND      R  L24020
OU number of line port:    LINNBR    R   61
Line type:                  TYPE      R  *SDLCS
Connection type(*SWT *PP *MP): CNN      R  *MP
Data rate:                  RATE      R  9600
Switched network backup?    SWNBKU      *NO
Speed select feature?        SELECT
NRZI decoding (*NO *YES):    NONRTNZ      *YES
S/38 provided clock(*NO *YES): CLOCK      *NO
Autocall feature (*NO *YES): AUTOCALL      *NO
Autoanswer feature (*NO *YES): AUTOANS      *NO
S/38 answer tone (*NO *YES): ANSTONE      *NO
Physical wire connection    WIRE
  Normal wire type (2 4):      4
  Backup type, if SWNBKU (2 4): 2
Data comm equipment group:    DCEGRP
Non-IBM modem (*NO *YES):    OEMMDM      *NO
Switched connection type:    SWTCNN      *BOTH
Speed rate type (*FULL *HALF): RATETYPE    *FULL
Dial mode (*MANUAL *AUTO):    DIALMODE
```

Figure 40. Create Line Description Prompt

In Figure 40 the LINNBR parameter identifies the physical port on the S/38. Because the S/38 is attached to the host, the line is always secondary which is defined by *SDLCS.

In our scenario the S/38 is attached to the host on a multipoint line which is defined by connection type *MP.

NONRTNZ=*YES has to match the NRZI parameter in the VTAM/NCP line definition.

Create Line Description (CRTLIND) Prompt			+++
Answer mode (*MANUAL *AUTO):	ANSMODE		
Data terminal ready delay:	DTRDLY		
Idle detection time:	IDLETIME		
BSC receive timeout timer:	RCVTMR	15	
Nonproductive receive time:	NONPRDRCV		
Number of error retries:	RETRY	1	
Online at CPF start(*YES *NO):	ONLINE	*YES	
Nonswitched control units:	CTLU		
	+ for more		
BSC switched control units:	SWCTLU		
	+ for more		
Station address:	STNADR	C3	
Exchange identifier in hex:	EXCHID	0222696A	
Line code (*EBCDIC *ASCII):	CODE	*EBCDIC	
Remote job entry (*NO *YES):	RJE	*NO	
BSC switched line disconnect?	BSCSWTDSC	*YES	
3270 device emulation?	EML3270	*NO	
X.25 network type:	X25NETTYPE	0101	
X.25 network local address:	LCLNETADR	*NONE	
X.25 default packet size:	DFTPKTSIZE	128	
X.25 maximum packet size:	MAXPKTSIZE	*DFTPKTSIZE	

Figure 41. Create Line Description (continued)

In Figure 41 the station address must match the PU address defined in the PU macro in the NCP. For more information on the other parameters see *S/38 Control Language Reference Manual*.

Create Line Description (CRTLIND) Prompt		
X.25 default window size:	DFTWDWSIZE	2
X.25 maximum PIU size:	NETMAXPIU	521
X.25 logical channel entries	LGLCHLE	
Logical channel group nbr:		
Logical channel channel nbr:		
Logical channel type:		
PVC control unit name:		
	+ for more	
Public authority	PUBAUT	
(*NORMAL *ALL *NONE):		*NORMAL
Text 'description':	TEXT	'SNA Host line 124020 with sub area 24'
Comment:		

Figure 42. Create Line Description Prompt (continued)

Press Enter to create your line description.

4.4.2 Create Host Controller Description

The next step is to create a controller description to describe the communication characteristics of the S/370 remote system. Enter command CRTAUD and CMD 4 for prompting.

Create Control Unit Desc (CRTAUD) Prompt				+++
Enter the following:				
Label:				
Control unit description name:	CUD	R	P24020C3	
Control unit type:	TYPE	R	PU2	
Model number:	MODEL	R	0	
Control unit address:	CTLADR	R	0061	
Switched line (*NO *YES):	SWITCHED		*NO	
Nonswitched line name:	LINE		L24020	
Speed select feature?	SELECT		*NO	
Switched telephone number:	TELNR		*NONE	
Switched initial connection:	INLCNN		*ANS	
Exchange identifier in hex:	EXCHID		*NONE	
BSC local identifier:	LCLID		*NONE	
BSC remote identifiers:	RMTID		*NONE	
	+ for more			
SSCP identifier:	SSCPID			
SSCP identifier checking?	SSCPIDCHK		*NO	
Online at CPF start(*YES *NO):	ONLINE		*YES	
Switched line names:	LINLST			
	+ for more			
Switched network backup?	SWNBKU		*NO	
Allow delayed connection?	DLYFEAT		*NO	

Figure 43. Create Control Unit Desc Prompt

The name of the controller description in Figure 43 is P24020C3.

Control unit type is PU2, after exchange identification the host will know that the S/38 is a T2.1 node and supports dependent and independent LUs on the same controller.

Control unit address is 0061, where 61 has to match the line port in the attached line description.

Create Control Unit Desc (CRTAUD) Prompt				+++
Attached device names:				
	DEV			
	+ for more			
BSC device delay in sec:	DEVPLY		120	
BSC program delay in sec:	PGMDLY		120	
Remote job entry (*NO *YES):	RJE		*NO	
RJE host:	RJEHOST		*NONE	
RJE host 'signon'/'logon':	RJELOGON		*NONE	
3270 device emulation?	EML3270		*NO	
Maximum length PIU:	MAXLENPIU		521	
Data compression:	DTACPR		*NO	
Device wait timeout value:	DEVWAIT		*TYPE	
Link type:	LINKTYPE		*NONE	
Controller code:	CODE			
X.25 address:	X25ADR			
X.25 default packet size:	DFTPKTSIZE		*LIND	
X.25 default window size:	DFTWDSIZE		*LIND	
X.25 LLC protocol:	NETPCL		*QLLC	
X.25 response timer:	NETRSPTMR			

Figure 44. Create Control Unit Desc (continued)

Press Enter to create this controller description.

Create Control Unit Desc (CRTCUD) Prompt		
X.25 reverse charging	NETRVSCRG	
Incoming calls:		*NO
Outgoing calls:		*NO
X.25 closed user group ID:	NETCUGID	*NONE
X.25 connection password:	NETCNNPWD	*NONE
X.25 user facilities:	NETUSRFCL	*NONE
Public authority	PUBAUT	
(*NORMAL *ALL *NONE):		*NORMAL
Text 'description':	TEXT	'SNA Host control unit P24020C
3 on L24020'		
Comment:		

Figure 45. Create Control Unit Desc (continued)

For more information on the other parameters see *S/38 Control Language Reference Manual*.

4.4.3 Create Device Description

The device description contains the characteristics of the logical device (LU) on the S/38 that the remote system will communicate with. This device (LU) will be used to communicate with the AS/400 behind the subarea network. Use the command CRTDEVD + CMD 4 for prompting.

Create Device Description (CRTDEVD) Prompt

+++

Enter the following:

Label:

Device description name: DEVD R RAONN

Device address: DEVADR R 000061

Device type code: DEVTYPE R *PEER

Model identifier: MODEL R 0

Control unit name: CTLU P24020C3

Online at CPF start(*YES *NO): ONLINE *YES

Dkt/tape error retries RETRY

Error type:

Maximum times to retry: + for more

Dkt/tape error log threshold THRESHOLD

Threshold error type:

Number of errors allowed: + for more

Drop line at signoff: DROP *YES

Associated work stn printer: PRINTER *NONE

Message queue name: MSGQ QSYSOPR

Library name: *LIBL

Print image name: PRTIMG

Library name: *LIBL

Figure 46. Create Device Description Prompt

The device description name in Figure 46 is RAONN. This is an arbitrary name and doesn't have to match any other parameters.

The device address is 000061, where the first two digits indicates the independent Lu support. It is possible to create more devices with "00" as the first two digits to the same controller. Digits three and four have to match the first two digits of controller description address and digits five and six have to match the port address of the line to be used.

P24020C3 is the name of the controller to which this device is attached.

Create Device Description (CRTDEVD) Prompt			+++
Print file name:	PRTFILE	QSYSPRT	
Library name:		*LIBL	
Work stn controller address:	WSCADR	*NONE	
Work stn controller keyboard:	WSCKBD	*NONE	
Allow blink (*YES *NO):	ALWBLN	*YES	
BSC contention resolution:	CONTN		
Local LU name:	LCLLU	RAOTNNC0	
Remote LU name:	RMTLU	RAQAS4A	
System validation password:	SYSVDPWD	*NONE	
Secure LU:	SECURELU	*NO	
Font identification:	FONT		
Form feed:	FORMFEED	*CONT	
Emulation device type:	EMLDEVTP	3277	
Emulation keyboard type:	EMLKBDTYP	*UPPER	
Maximum length RU:	MAXLENRU	256	
Auxiliary device	AUXDEV		
Auxiliary device type:		*NONE	
Auxiliary device address:			
	+ for more		
Network device address:	NETDEVADR	*NONE	

Figure 47. Create Device Description Prompt (continued)

In Figure 47 you are required to define your local and remote LU names. The local LU name is RAOTNNC0 and must match the LU name defined in the NCP LU macro to communicate with the S/38. The remote LU name defines the location (LU) with which it wants to communicate and therefore must match the local location name which resides in the local location list of the AS/400. Because the communication will use the host as an intermediate system the remote LU name must also match the LU name for the AS/400 in the VTAM switched major node.

Create Device Description (CRTDEVD) Prompt		
Character Identifier	CHRID	
Graphic character set:		*SYSVAL
Code page:		
Public authority	PUBAUT	
(*NORMAL *ALL *NONE):		*NORMAL
Text 'description':	TEXT	'Device Description for
RALYAS4A'		
Comment:		

Figure 48. Create Device Description Prompt (continued)

For more information on the other parameters see *S/38 Control Language Reference Manual*.

Press Enter to create the device description.

4.4.4 Create Mode Description

The mode description describes the session characteristics and number of sessions that will be used to negotiate the allowable values between the local and remote locations. A mode with the same name must exist at both end points. There must also be a mode entry with the same name in VTAM/NCP.

To define and add a mode description for device RAONN use the command ADDDEVMODE + CMD 4 for prompting.

```

Add Device Mode (ADDDEVMODE) Prompt
Enter the following:
Label:
Device description name:   DEVD      R   RAONN
Mode name:                 MODE      R   MODS361
Maximum number of sessions: MAXSSN   P   8
Number of prebound sessions: PREBNDSSN P 0
Maximum source sessions:   MAXSRCSSN P 4
Maximum conversations:     MAXCNV    P  8
Inbound pacing value:     INPACING   P  7
Outbound pacing value:    OUTPACING  P  7
Maximum length RU:        MAXLENRU  P 256
Comment:                  /* Mode for Network USIBMRA */
```

Figure 49. Add Device Mode Prompt

```

Add Communications Entry (ADDCMNE) Prompt
Enter the following:
Subsystem description name: SBS      R   qsnads
Library name:              *LIBL
Device name:                DEV      R   raonn
Job description name:       JOBD     P   qsnads
Library name:              qgp1
Default user profile name:  DFTUSR   P   qsnads
Mode name:                 MODE     *ANY
Max concurrently active jobs: MAXACT  *NOMAX
```

Figure 50. Add Communications Entry Prompt

To be able to use this device description for communications to the AS/400 you must add a communications entry in a subsystem on the S/38. We are using the subsystem name QSNADS for the device RAONN. To add your device to the subsystem you use the CL command ADDCMNE. You must make sure the subsystem is not active. If it is active you can enter the TRMSBS command. This will terminate your subsystem so you can make the necessary changes. Once you have added your communications entry you activate the subsystem again by using the STRSBS command. For more details on how to setup a communication environment on the S/38 see *S/38 Control Program Facility Programmers Guide*.

4.5 Relationship between S/38 and VTAM/NCP for a Leased Line

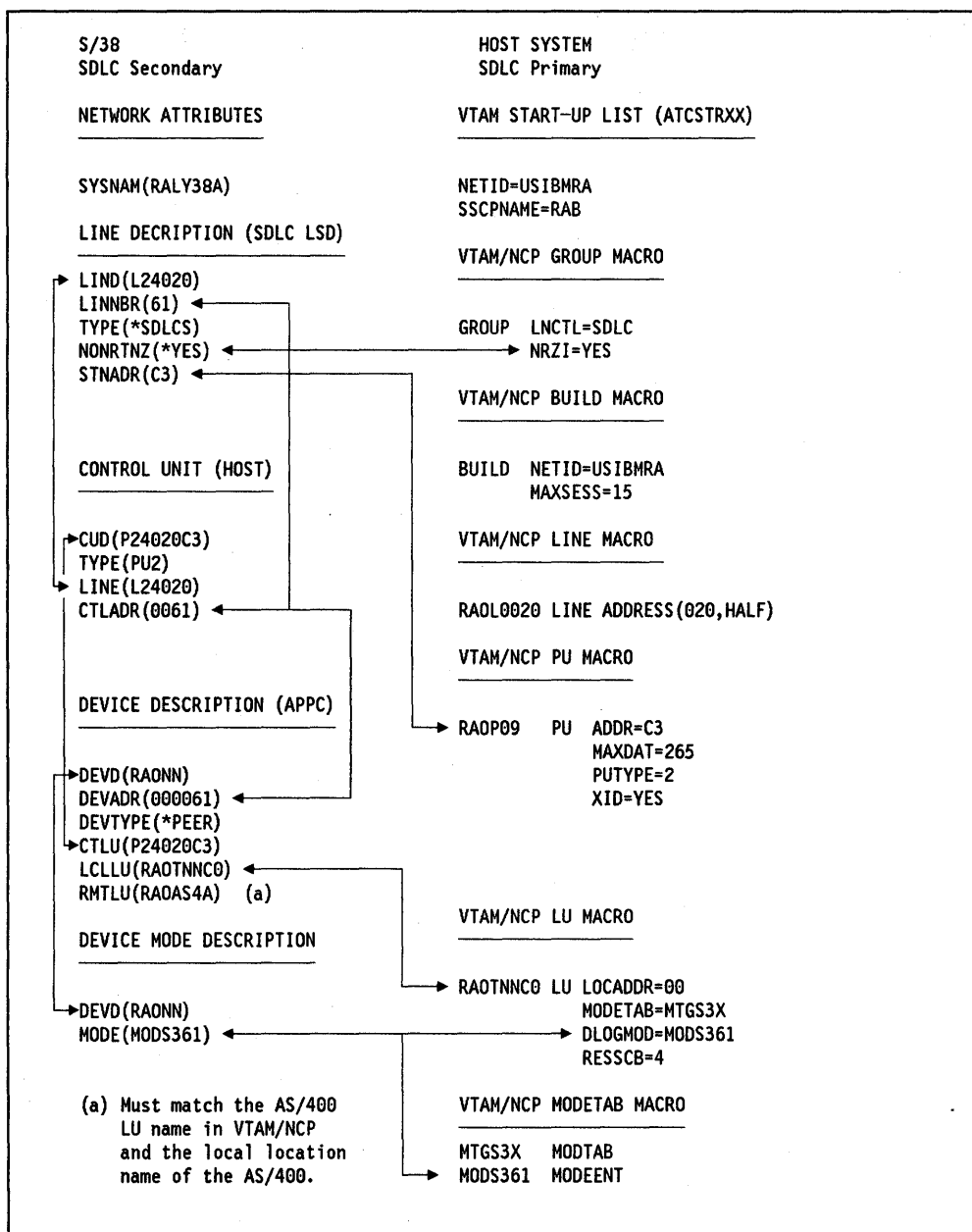


Figure 51. Defining a Leased Line between S/38 and VTAM/NCP

4.6 Definitions on the S/370 Host

4.6.1 VTAM Switched Major Node Definitions for the AS/400

```
*****
*          VTAM SWITCHED MAJOR NODE FOR NTRI WITH APPCLU          *
*****
          VBUILD MAXGRP=5,          REQUIRED          * X00010480
          MAXNO=12,          REQUIRED          * X00010490
          TYPE=SWNET          REQUIRED          00010500
RAOP13    PU  ADDR=01,          * X00010540
          CPNAME=RALYAS4A,      AS/400A NN      * X0
          DISCNT=NO,          * X00010570
          MAXOUT=1,          * X00010580
          MAXPATH=0,          * X00010590
          VPACING=0,          * X00010610
          PUTYPE=2,          * X00010620
          SSCPFM=USSSCS      00010630
**
RAOAS4A   LU  LOCADDR=0,          FOR THE AS/400A : ILU      * X00010650
          RESSCB=4,          * X
          MODETAB=MTGS3X,      * X
          DLOGMOD=MODS361
```

Figure 52. VTAM Switched Major Node Definitions for the AS/400

The PU macro Figure 52 specifies RALYAS4A as the CP name for the AS/400. We coded DISCNT=NO because we tested the "switched disconnect" function of the AS/400.

4.6.2 NCP Definitions for the AS/400

```
***** 01220008
*          BUILD MACRO SPECIFICATIONS          * 01230008
***** 01240008
NCPBUILD BUILD VERSION=V4R3,      # NCP V4 REL3      X01250008
          ADDSESS=20,          ENOUGH BLOCKS DEFINED IN RESSCB X01260008
          AUXADDR=10,          ADDITIONAL PLU ADDRESSES FOR ILU X01260108
          LOADLIB=NCPLOAD,      LIB FOR LOAD MODULE      X01380008
          MAXSESS=16,          MAX LU-LU SESSIONS ANY LU CAN HAVE X01400008
          MAXSSCP=8,          MAXIMUM SESSIONS FOR LU      X01401008
          MODEL=3725,          X01420008
          NAMTAB=50,          # ENTRIES FOR SSCP, CP & NET NAMES X01430008
          NETID=USIBMRA,        NATIVE NETWORK          X01431008
          NEWNAME=RAONCP0,      NAME OF THIS LOAD MODULE      V3X01440008
          SUBAREA=24,          SUBAREA ADDRESS = 24          X01470008
          SUBAREA=(20)          CHANNEL ATTACHED HOSTSA REL 3 01970008
          :                      :                      01970008
```

Figure 53. NCP BUILD Macro Definitions for the AS/400 and S/38

For information about the parameters in Figure 53 see the descriptions in chapter 3.1.

```

***** 04750008
*      SNA SWITCHED LINE GROUP 04760008
***** 04770008
RAOGSHS0 GROUP LNCTL=SDLC, X14580008
        DIAL=YES, X14590008
        NEWSYNC=NO, X15600008
        NRZI=YES, X14610008
        PAUSE=1, X14620008
        RETRIES=(7,4,5) X14630008
RAOL0025 LINE ADDRESS=(25,HALF), PHONE NUMBER 850-2401 X14640008
        NPACOLL=YES, NPAX14650008
        OWNER=RAB, (V) VTAM X14660008
        CLOCKNG=EXT, X14670008
        DUPLEX=HALF, X14680008
        RETRIES=(5,4,24), X14690008
        SPEED=2400, X14700008
        ANSWER=ON, (V) VTAM X14710008
        CALL=INOUT, (V) VTAM X14720008
        ISTATUS=ACTIVE, X14730008
*      ATTACH=MODEM, # NOT SUPPORTED V4R3 X14740008
        STATOPT=('DIAL LINE',NOMONIT) X14750008
RAOP13 PU PUTYPE=(1,2), X14760008
        XID=YES X14770008
        :
        :

```

Figure 54. NCP Switched Line Definitions for the AS/400

In Figure 54 the line group name RAOGSHS0 describes switched lines by defining DIAL=YES. CALL=INOUT provides the capability to dial in both directions: from the host to the AS/400 and from the AS/400 to the host. ANSWER=ON allows the host to be ready to answer if dialing-in.

The PU RAOP13 only defines the PU type and the parameter XID=YES to appear as T2.1 node to the AS/400. The other parameters are overwritten by the switched major node definitions as well as the LU macro definitions.

4.6.3 VTAM/NCP Definitions for the S/38

NCP, which operates in a communication controller, controls and services the devices attached to it, and transmits and receives data for the devices. It also forwards data as a node to other communication controllers or to a host processor.

```

***** 01220008
*      BUILD MACRO SPECIFICATIONS * 01230008
***** 01240008
NCPBUILD BUILD VERSION=V4R3, # NCP V4 REL3 X01250008
        ADSESS=20, ENOUGH BLOCKS DEFINED IN RESSCB X01260008
        AUXADDR=10, ADDITIONAL PLU ADDRESSES FOR ILU X01260108
        LOADLIB=NCPLOAD, LIB FOR LOAD MODULE X01380008
        MAXSESS=16, MAX LU-LU SESSIONS ANY LU CAN HAVE X01400008
        MAXSSCP=8, MAXIMUM SESSIONS FOR LU X01401008
        MODEL=3725, !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!! X01420008
        NAMTAB=50, # ENTRIES FOR SSCP, CP & NET NAMES X01430008
        NETID=USIBMRA, NATIVE NETWORK X01431008
        NEWNAME=RAONCP0, NAME OF THIS LOAD MODULE V3X01440008
        SUBAREA=24, SUBAREA ADDRESS = 24 X01470008
        SUBAREA=(20) CHANNEL ATTACHED HOSTSA REL 3 01970008
        :
        :
        :

```

Figure 55. NCP BUILD Macro Specifications.

In Figure 55 we define a BUILD macro which indicates the NCP version, the type of communication controller to be used, the name of this load module, the NCP subarea and the host subarea. USIBMRA is the network ID for the VTAM/NCP node in the scenario 1 configuration.

```

***** 04750008
*      LINE MACRO SPECIFICATION      SDLC LINK 020      04760008
***** 04770008
RAOL0020 LINE ADDRESS=(020,HALF), TRANSMIT AND RECEIVE ADDRESSES X04780008
          NPACOLL=YES, NPAX04790008
          ANS=CONTINUE, DON'T BREAK CROSS DOMAIN SESSIONS X04800008
          OWNER=RAB, (V) VTAM X04810008
          ISTATUS=ACTIVE, X04820008
          DUPLEX=(FULL), REQUEST TO SEND ALWAYS UP X04830008
          ETRATIO=30, DEFAULT X04840008
          LPDATS=LPDA1, X04850008
          MAXPU=9, ALLOW NO MORE THAN 9 PUS ON LINE X04860008
          SERVLIM=2, X04870008
          SRT=(,64), X04880008
          SPEED=(4800) LINE SPEED IS 4800 BPS 04890008
*      ATTACH=MODEM, # NOT SUPPORTED V4R3 04900008
*      STATOPT=('S/36,S/38',NOMONIT) 04910008

```

Figure 56. NCP LINE Macro Specification for the S/38

In Figure 56 the line RAOL0020 is specified as a non-switched line attached to the host RAB (subarea 20).

```

***** 06973008
* PU/LU MACRO FOR S/38 * 06980008
***** 06990008
* PU AND LU DEFINITIONS FOR S/38A TO SUPPORT 07010009
* DEPENDENT AND INDEPENDENT LUS 07020009
***** 07040009
RAOP09 PU ADDR=C3, 3270 ADDRESS='C' (EBCDIC) X07090009
MAXDATA=265, MAXIMUM AMOUNT OF DATA X07100009
MAXOUT=7, MAX SDLC FRAMES BEFORE RESPONSE X07110009
PACING=(7), PACING SET BY BIND IMAGE X07120012
ANS=CONTINUE, KEEPS CROSS-DOMAIN RUNNING X07130009
PASSLIM=7, X07140009
PUTYPE=2, X07150009
RETRIES=(1,4), 4 RETRIES, 1 SECOND BETWEEN X07160009
DISCNT=(NO), (V) VTAM ONLY X07170009
ISTATUS=ACTIVE, (V) VTAM ONLY X07180009
VPACING=8, (V) VTAM ONLY X07190010
XID=YES 07200010
* STATOPT='S/38A T2.1' 07210010
***** 07220009
* DEFINITIONS FOR S/38A - RALY38A * 07230009
* RAOTNNC0 TO C3 INDEPENDENT LUS 07240009
***** 07330009
RAOTNNC0 LU RESSCB=4, INDEPENDENT LU X07340010
LOCADDR=0, X07341013
MODETAB=MTGS3X, X07350010
DLOGMOD=MODS361, X07360010
ISTATUS=ACTIVE 07370010
* STATOPT='INDEPENDENT LU' 07380010
RAOTNNC1 LU RESSCB=4, INDEPENDENT LU X07390010
LOCADDR=0, X07391013
MODETAB=MTGS3X, X07400010
DLOGMOD=MODS361, X07410010
ISTATUS=ACTIVE 07420010
* STATOPT='INDEPENDENT LU' 07430010
RAOTNNC2 LU RESSCB=4, INDEPENDENT LU X07440010
LOCADDR=0, X07441013
MODETAB=MTGS3X, X07450010
DLOGMOD=MODS361, X07460010
ISTATUS=ACTIVE 07470010
* STATOPT='INDEPENDENT LU' 07480010
RAOTNNC3 LU RESSCB=4, INDEPENDENT LU X07490010
LOCADDR=0, X07491013
MODETAB=MTGS3X, X07500010
DLOGMOD=MODS361, X07510010
ISTATUS=ACTIVE 07520010
* STATOPT='INDEPENDENT LU' 07530010

```

Figure 57. PU and LU Definitions for S/38

In Figure 57 the physical address C3 is defined for the S/38. This value has to match with the station address defined in the S/38 controller description.

PUTYPE=2 and XID=YES must be specified to appear to the S/38 as a T2.1 node. Exchange ID will be negotiated between both systems.

The LU used for scenario 1 is RAOTNNC0. Because it is an independent LU, we have to specify LOCADDR=0. RESSCB=4 means that this specific LU has four reserved session control blocks for itself.

4.7 Definitions for Display Station Passthrough on AS/400

We used Display Station Passthrough (DSPT) to test the ability to have sessions between the AS/400 and S/38 using the S/370 subarea network. To be able to use DSPT at least one virtual controller and device must be configured for the target system. They describe the characteristics of the controller and a display station but are not physically attached to this system. Because we start DSPT from the AS/400 as well as from S/38 we have to create these objects on both systems.

4.7.1 Create Virtual Controller and Virtual Devices

MAIN

AS/400 Main Menu

System: RALYAS4A

Select one of the following:

1. User tasks
2. Office tasks
3. General system tasks
4. Files, libraries, and folders
5. Programming
6. Communications
7. Define or change the system
8. Problem handling
9. Display a menu
90. Sign off

Selection or command
====> 7

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
F23=Set initial menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 58. AS/400 Main Menu Screen

Select option 7 in Figure 58 to define the configuration.

DEFINE	Define or Change the System	System: RALYAS4A
Select one of the following:		
1. Configuration 2. Manage licensed programs 3. Security 4. Work with support contact information 5. Work with hardware products 6. Program temporary fix (PTF) 8. Display system values 9. Change system values		
Selection or command		
==> 1		
F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support F16=System main menu		
(C) COPYRIGHT IBM CORP. 1980, 1988.		

Figure 59. Define or Change the System Screen

Select option 1 in Figure 59 to define the configuration.

CFG	Configuration	System: RALYAS4A
Select one of the following:		
1. Configure devices and communications 2. Network configuration 3. Work with hardware products 4. Network management		
Selection or command		
==> 1		
F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support F16=System main menu		
(C) COPYRIGHT IBM CORP. 1980, 1988.		

Figure 60. Configuration Screen

Select option 1 in Figure 60 to define the configuration.

```

CFGDEVCMN          Configure Devices and Communications          System:  RALYAS4A

Select one of the following:

    1. Configure local hardware
    2. Configure communications and remote hardware
    3. Configure virtual controllers and devices
    4. Work with configuration status

Selection or command
===> 3

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 61. Configure Devices and Communications Screen

Select option 3 in Figure 61 to define the virtual controller.

```

CFGVRT          Configure Virtual Controllers and Devices          System:  RALYAS4A

Select one of the following:

    1. Controllers
    2. Printers
    3. Display stations

Selection or command
===> 1

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 62. Configure Virtual Controllers and Devices Screen

Select option 1 in Figure 62 to define the virtual controller.

```

                                Work with Controller Descriptions          System:  RALYAS4A

Position to . . . . .          Starting character(s)

Type options, press Enter.
    2=Change  3=Copy  4=Delete  5=Display  6=Print

Opt  Controller  Type  Text

                                                                 Bottom

Parameters for option 2 or command
===>

F3=Exit  F4=Prompt  F5=Refresh  F6=Create  F9=Retrieve  F12=Previous
F14=Work with status

(C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 63. Work with Controller Descriptions Screen

Select F6 in Figure 63 to create the virtual controller PT5250.

```

CRTCTLVWS                Create Ctl Desc (Virtual WS)

Type choices, press Enter.

Controller description . . . . . > PT5250          Name
Online at IPL . . . . . *YES                      *YES, *NO
Text 'description' . . . . . Virtual Controller for DSPT(S/38)

                                                    Bottom
F3=Exit  F4=List  F5=Refresh  F10=Additional parameters  F11=Keywords
F12=Previous  F13=How to use this display

```

Figure 64. Create CTL Desc (Virtual WS) Screen

Define the controller PT5250 and press Enter to create it.

```

CFGVRT                Configure Virtual Controllers and Devices
                                                    System:  RALYAS4A

Select one of the following:

    1. Controllers
    2. Printers
    3. Display stations

Selection or command
===> 3

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 65. Configure Virtual Controllers and Devices Screen

Select option 3 in Figure 65 to create a virtual display station.

```

Work with Device Descriptions
                                                    System:  RALYAS4A

Position to . . . . . Starting character(s)

Type options, press Enter.
    2=Change  3=Copy  4=Delete  5=Display  6=Print

Opt  Device      Type      Text.
    AS4APT02    5251    5250 PT DSP
    AS4APT03    5251    5250 PT DSP
    AS4APT04    5251    5250 PT DSP
    AS4APT05    5251    5250 PT DSP

                                                    Bottom

Parameters for option 2 or command
===>
F3=Exit  F4=Prompt  F5=Refresh  F6=Create  F9=Retrieve  F12=Previous
F14=Work with status

(C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 66. Work with Device Descriptions Screen

Select F6 in Figure 66 to create a virtual display station.

Create Device Description		
Type choices, press Enter.		
New device description	as4apt01	Name
Device type/class . . :	*DSP	
F3=Exit F12=Previous		

Figure 67. Create Device Description Screen

Press Enter to get the next parameters.

CRTDEVDPSP Create Device Desc (Display)		
Type choices, press Enter.		
Device description	> AS4APT01	Name
Device class	> *VRT	*LCL, *RMT, *VRT
Device type	> 5291	3101, 3151, 3161, 3162...
Device model	> 2	0, 1, 2, 11, 12, 23, 31...
Online at IPL	*YES	*YES, *NO
Attached controller	pt5250	Name
Keyboard language type	usb	*SYSVAL, AGB, AGI, BLI...
Character identifier:		
Graphic character set	*SYSVAL	1-32767, *SYSVAL
Code page		1-32767
Allow blinking cursor	*YES	*YES, *NO
Printer		Name
Print file	QSYSPRT	Name
Library	*LIBL	Name, *LIBL, *CURLIB
Text 'description'	Virtual 5291 Device	
Bottom		
F3=Exit F4=List F5=Refresh F10=Additional parameters F11=Keywords		
F12=Previous F13=How to use this display		

Figure 68. Create Device Description Screen

By definition, this virtual display will be attached to the virtual controller PT5250. You may want to create multiple virtual devices with different device types.

4.8 Definitions for Display Station Passthrough on S/38

We will be using Display Station Passthrough (DSPT) to test the ability to have sessions between the S/38 and AS/400 using the S/370 subarea network. To be able to use DSPT at least one virtual controller and device must be configured for the target system. They describe the characteristics of the controller and a display station but are not physically attached to this system. Because we start DSPT from the AS/400 we have to create these objects on the S/38.

Because we already used the created definitions on S/38, we will just show the definitions.

4.8.1 Display Virtual Controller and Virtual Devices

```
5/22/89 17:53:34  CONTROL UNIT DESCRIPTION      +++
Status: ACTIVE
Devices varied on: 013          Devices active: 002
Control unit description name: CUD      PASTHR
Control unit type:              TYPE      *PASS
Model number:                  MODEL      *NONE
Control unit address:          CTLADR     00FF
Switched line:                 SWITCHED
Nonswitched line name:         LINE       *NONE
Speed select feature:          SELECT
Telephone number:              TELNBR     *NONE
Switched initial connection:   INLCNN
Exchange identifier:           EXCHID
BSC local identifier:          LCLID
BSC remote identifiers:        RMTID
SSCP identifier:               SSCPID
SSCP identifier checking:      SSCPIDCHK
Online at CPF start:           ONLINE     *YES
Current switched line:
Switched network backup:       SWNBKU
Activate swt network backup:   ACTSWNBKU
Allow delayed connection:      DLYFEAT
Attached device names:         DEV
                                PASPRT01  PASTRM02
BSC device delay in sec:       DEVDLY
```

Figure 69. Virtual Control Unit Description Screen

In Figure 69 the control unit description name is PASTHR. This is the name to be used when DSPT is started from the AS/400 as the virtual controller name and no specific virtual device will be selected.

The control unit type must be *PASS for a virtual controller.

The control unit address is always '00FF' for a virtual controller.

Attached device names show the devices created to attach to this controller.

For the other parameters see *S/38 Data Communications Programmer's Guide*.

```

5/22/89 17:56:38  DEVICE DESCRIPTION          ***
Status: VARY ON PENDING
Device description name:    DEVD      PASTRM02
Device address:            DEVADR    000000
Device type code:         DEVTYPE    5251
Model number:             MODEL      0011
Control unit description name: CTLU    PASTHR
Online at CPF start:      ONLINE     *YES
Drop line at sign off:    DROP       *YES
Associated work stn printer: PRINTER   PASPRT01
Associated message queue:  MSGQ
Library name:
Print image name:         PRIMG
Library name:
Printer device file name:  PRTFIL     QSYSPRT
Library name:             *LIBL
Work stn controller address: WSCADR    020000
Work stn controller keyboard: WSCKBD   TAGB
Allow blinking cursor:    ALWBLN     *YES
BSC contention resolution: CONTN
Local LU name:            LCLLU
Remote LU name:           RMTLU
Secure LU:                SECURELU
Printer font:             FONT
Feed mode:                FORMFEED
3270 emulation device type: EMLDEVTP
3270 emulation keyboard type: EMLKBDTP
Maximum length RU:        MAXLENRU
Auxiliary device:         AUXDEV
(No auxiliary devices)
Network device address:    NETDEVADR
Character identifier:      CHRID
Graphic character set:          *SYSVAL
Code page:
Text description:         TEXT
Virtual Screen 5251-11

```

Figure 70. Virtual Device Description Screen

In Figure 70 the device address must always be 000000 for a virtual device.

The control unit description PASTHR to which this device has to be attached to.

Workstation controller address must be a unique address to the virtual controller for this device.

PASPRT01 is the associated work station printer to this device.

For the other parameters see *S/38 Data Communications Programmer's Guide*.

4.9 Communications Activation

This section will describe how to activate the network from both the AS/400 and S/38 and to establish sessions across the S/370 subarea using Display Station Passthrough.

4.9.1 AS/400 Switch Line Activation

To activate a switched line from the AS/400 to the host you will need to "Vary On" both the line and controller separately. The following screens will guide you through this exercise. You can also go directly to the "Work with Configuration Status" screen by using the WRKCFGSTS command.

MAIN

AS/400 Main Menu

System: RALYAS4A

Select one of the following:

1. User tasks
2. Office tasks
3. General system tasks
4. Files, libraries, and folders
5. Programming
6. Communications
7. Define or change the system
8. Problem handling
9. Display a menu

90. Sign off

Selection or command
==> 6

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
F23=Set initial menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 71. AS/400 Main Menu Screen

Select option 6 in Figure 71 to use the communication functions.

CMN	Communications	System: RALYAS4A
-----	----------------	------------------

Select one of the following:

1. Communication status
2. Messages
3. Remote jobs
4. Configure communications
5. Network management
6. Network configuration
7. Verify communications
8. Send or receive files
9. Jobs

70. Related commands

Selection or command
==> 1

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 72. Communcations Screen

Select option 1 in Figure 72 to look at the communication status.

CMNSTS	Communications Status	System: RALYAS4A
--------	-----------------------	------------------

Select one of the following:

1. Work with line status
2. Work with controller status
3. Work with device status

70. Related commands

Selection or command
==> 1

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 73. Communications Status Screen

Select option 1 in Figure 73 to look at the line status.

WRKCFGSTS	Work with Configuration Status
-----------	--------------------------------

Type choices, press Enter.

Type	*LIN	*LIN, *CTL, *DEV
Configuration description . . .	L24025	Name, generic*, *ALL, *CMN... Bottom

F3=Exit F4=List F5=Refresh F11=Keywords F12=Previous
F13=How to use this display

Figure 74. AS/400 Work with Configuration Status Screen

Type the line description name L24025, which is the switched line from this AS/400 to the host.

```

                                Work with Configuration Status
                                System:  RALYAS4A
Position to . . . . . Starting character(s)

Type options, press Enter.
  1=Vary on  2=Vary off  3=Hold device  4=End recovery  5=Work with job
  6=Release device  7=Resume recovery

Opt Lin/Ctl/Dev/Mod Status -----Job-----
  1  L24025          VARIED OFF

Parameters for options 1, 2, 3 or command
===>
F3=Exit  F4=Prompt  F5=Refresh  F9=Retrieve  F12=Previous
F14=Work with lines

                                Bottom
                                (C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 75. AS/400 Work with Configuration Status Screen (continued)

Select option 1 in Figure 75 to vary on the line. The status should now change to Connect Pending. Select F3 to return to the Communications Status Screen.

```

CMNSTS                      Communications Status
                                System:  RALYAS4A
Select one of the following:

  1. Work with line status
  2. Work with controller status
  3. Work with device status

  70. Related commands

Selection or command
===> 2

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System Main Menu Screen

                                (C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 76. Communications Status Screen

Select option 2 in Figure 76 to vary on the controller and devices.

```

Work with Configuration Status
System: RALYAS4A
Position to . . . . . Starting character(s)

Type options, press Enter.
1=Vary on 2=Vary off 3=Hold device 4=End recovery 5=Work with job
6=Release device 7=Resume recovery

Opt Lin/Ctl/Dev/Mod Status -----Job-----
1 P24025D VARIED OFF
T24025D1 VARIED OFF
T24025D2 VARIED OFF
T24025D3 VARIED OFF
T24025D4 VARIED OFF
T24025D5 VARIED OFF
T24025D6 VARIED OFF
T24025D7 VARIED OFF
T24025D8 VARIED OFF

Parameters for options 1, 2, 3 or command
===>
F3=Exit F4=Prompt F5=Refresh F9=Retrieve F12=Previous
F14=Work with controllers
More...
(C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 77. Work with Configuration Status Screen

Because the devices are attached to the controller, we can vary on the controller and devices at the same time by selecting option 1 in Figure 77 against the controller description P24025D. When dialing, this controller will be attached to the first line with the correct status defined in the switched line list. Be aware that this AS/400 has defined APPN *YES, which means that the device will be automatically created and attached to this controller.

Select F3 to return to the Communications Status Screen.

4.9.2 Activate Virtual Controller on the AS/400

```

CMNSTS Communications Status
System: RALYAS4A

Select one of the following:

1. Work with line status
2. Work with controller status
3. Work with device status

70. Related commands

Selection or command
===> 2

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
F16=System main menu

```

Figure 78. Communications Status Screen

Select option 2 in Figure 78 to work with the virtual controller PT5250.

Take option 2 to Work with controller status.

```

WRKCFGSTS                      Work with Configuration Status

Type choices, press Enter.

Type . . . . . *CTL          *LIN, *CTL, *DEV
Configuration description . . . pt5250      Name, generic*, *ALL , *CMN...

                                           Bottom

F3=Exit  F4=List  F5=Refresh  F11=Keywords  F12=Previous
F13=How to use this display

```

Figure 79. Work with Configuration Status Screen

Enter the virtual controller description name and press Enter.

```

                                Work with Configuration Status
                                System:  RALYAS4A
Position to . . . . . Starting character(s)

Type options, press Enter.
 1=Vary on  2=Vary off  3=Hold device  4=End recovery  5=Work with job
 6=Release device      7=Resume recovery

Opt Lin/Ctl/Dev/Mod Status -----Job-----
    PT5250      ACTIVE
    AS4APT01     VARY ON PENDING
    AS4APT02     VARY ON PENDING
    AS4APT03     VARY ON PENDING
    AS4APT04     VARY ON PENDING
    AS4APT05     VARY ON PENDING

                                           Bottom

Parameters for options 1, 2, 3 or command
====>
F3=Exit  F4=Prompt  F5=Refresh  F9=Retrieve  F12=Previous
F14=Work with controllers

                                (C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 80. Work with Configuration Status Screen (continued)

Type 1 to vary on the virtual controller PT5250. The virtual controller is ready to be used for incoming DSPT requests from the S/38.

4.9.3 Activate Communications for the S/38

By keying in the command DSPLINSTS L24020, the panel in Figure 81 will show the line L24020 with the attached controller and devices. The devices starting with RAON* are independent devices (LUs) and will be used for DSPT.

5/22/89 17:58:09		LINE STATUS DISPLAY - L24020		
	LIN/CTL/DEV/M	STATUS	JOB NAME	USER NBR
4	L24020	VARIED OFF		
	P24020C3	VARIED OFF		
	RAONN	VARIED OFF		
	RAONN1	VARIED OFF		
	RAONN2	VARIED OFF		
	E24020C1	VARIED OFF		
	E24020C2	VARIED OFF		
	E24020C3	VARIED OFF		
	E24020C4	VARIED OFF		
	A24020C5	VARIED OFF		
	A24020C6	VARIED OFF		
	A24020C7	VARIED OFF		
	C24020C8	VARIED OFF		
	Q61DEVLU01	VARIED OFF		
	Q61DEVLU02	VARIED OFF		
	Q61DEVLU03	VARIED OFF		
	Q61DEVLU04	VARIED OFF		
HELP-Details on options 1 thru 11		CF5-Redisplay +		

Figure 81. Line Status Display Screen

Select option 4 next to the line description L24020 in Figure 81 to vary on the line, controller and devices.

4.9.4 Activate Communications on the S/370 Host

```
* RABAN V NET,ACT,ID=RAOL0025
RABAN IST097I VARY ACCEPTED
RABAN IST093I RAOL0025 ACTIVE
C RABAN AOPNLIST RAOL0025 NONE
RABAN IST097I DISPLAY ACCEPTED
```

Figure 82. Line Activation for AS/400

The host has the AS/400 attached via switched line RAOL0025. To activate the line, key in the NetView command as described in Figure 82.

```
NCCF NETVIEW RABAN WTCR21 05/26/89 09:00:59
* RABAN V NET,ACT,ID=SWAPPC
RABAN IST097I VARY ACCEPTED
RABAN IST093I SWAPPC ACTIVE
C RABAN AOPNLIST SWAPPC NONE
RABAN IST097I DISPLAY ACCEPTED
```

Figure 83. Switched Major Node Activation for AS/400

Because the AS/400 is attached to the host on a switched line, the switched major node has to be activated also. This is done by using the command in NetView as described in Figure 83.

```
NCCF NETVIEW RABAN WTCR21 05/26/89 09:02:00
* RABAN V NET,ACT,ID=RAOL0020
RABAN IST097I VARY ACCEPTED
RABAN IST093I RAOL0020 ACTIVE
C RABAN >AOPNLIST RAOL0020 NONE
RABAN IST097I DISPLAY ACCEPTED
```

Figure 84. Line Activation for the S/38

The host has the S/38 attached via leased line RAOL0020. To activate the line, key in the command as described in Figure 84 in NetView.

```
NCCF NETVIEW RABAN WTCR21 05/26/89 13:20:31
* RABAN V NET,ACT,ID=RAOP09,SCOPE=ALL
RABAN IST097I VARY ACCEPTED
RABAN IST093I RAOP09 ACTIVE
C RABAN AOPNLIST RAOP09 NONE
RABAN IST097I DISPLAY ACCEPTED
```

Figure 85. VTAM Vary Command for the S/38 PU

To activate the PU defined in VTAM/NCP for the S/38, key in the command as described in Figure 85.

```

NCCF      N E T V I E W      RABAN WTCR21  05/26/89 09:04:15
* RABAN   D NET,ID=SWAPPC,E
RABAN     IST097I  DISPLAY  ACCEPTED
' RABAN

IST075I  NAME = SWAPPC      , TYPE = SW SNA MAJ NODE
IST486I  STATUS= ACTIV     , DESIRED STATE= ACTIV
IST084I  NETWORK NODES:
IST089I  RAOP13  TYPE = PHYSICAL UNIT    , ACTIV
IST089I  RAOAS4A TYPE = LOGICAL UNIT     , ACT/S<-----
IST089I  RAOT25D1 TYPE = LOGICAL UNIT    , ACTIV
IST089I  RAOT25D2 TYPE = LOGICAL UNIT    , ACTIV
IST089I  RAOT25D3 TYPE = LOGICAL UNIT    , ACTIV
IST089I  RAOT25D4 TYPE = LOGICAL UNIT    , ACTIV
IST089I  RAOT25D5 TYPE = LOGICAL UNIT    , ACTIV
IST089I  RAOT25D6 TYPE = LOGICAL UNIT    , ACTIV
IST089I  RAOT25D7 TYPE = LOGICAL UNIT    , ACTIV
IST089I  RAOT25D8 TYPE = LOGICAL UNIT    , ACTIV
IST089I  RAOT25D9 TYPE = LOGICAL UNIT    , ACTIV
IST089I  RAOT25DA TYPE = LOGICAL UNIT    , ACTIV
IST089I  RAOT25DB TYPE = LOGICAL UNIT    , CONCT
IST089I  RAOT25DC TYPE = LOGICAL UNIT    , CONCT
IST089I  RAOT25DD TYPE = LOGICAL UNIT    , CONCT

```

Figure 86. VTAM Switched Major Node Status for the AS/400

Figure 86 displays the status of the VTAM switched major node for the AS/400. Notice that the LU (RAOAS4A) is active and in session.

```

NCCF      N E T V I E W      RABAN WTCR21  05/26/89 09:05:33
' RABAN
C RABAN   DISPLAY NET,ID=RAOP13,SCOPE=ALL
RABAN     IST097I  DISPLAY  ACCEPTED
' RABAN

IST075I  NAME = RAOP13      , TYPE = PU_T2.1<-----
IST486I  STATUS= ACTIV     , DESIRED STATE= ACTIV
IST136I  SWITCHED SNA MAJOR NODE = SWAPPC
IST081I  LINE NAME = RAOL0025, LINE GROUP = RAOGSHS0, MAJNOD = RAONCP0
IST654I  I/O TRACE = OFF, BUFFER TRACE = OFF
IST355I  LOGICAL UNITS:
IST080I  RAOAS4A ACT/S      RAOT25D1 ACTIV    RAOT25D2 ACTIV
IST080I  RAOT25D3 ACTIV    RAOT25D4 ACTIV    RAOT25D5 ACTIV
IST080I  RAOT25D6 ACTIV    RAOT25D7 ACTIV    RAOT25D8 ACTIV
IST080I  RAOT25D9 ACTIV    RAOT25DA ACTIV    RAOT25DB CONCT
IST080I  RAOT25DI ACTIV    RAOT25DJ ACTIV    RAOT25DK ACTIV
IST314I  END

```

Figure 87. VTAM Status for the AS/400

Figure 87 displays the status of the PU RAOP13 for the AS/400. Notice that the PU is seen as T2.1 after activation.

```

C RABAN      DISPLAY NET,ID=RAOP09,SCOPE=ALL
RABAN      IST097I  DISPLAY  ACCEPTED
' RABAN
IST075I  NAME = RAOP09              , TYPE = PU_T2.1<-----
IST486I  STATUS= ACTIV              , DESIRED STATE= ACTIV
IST081I  LINE NAME = RAOL0020, LINE GROUP = RAOGSFLO, MAJNOD = RAONCP0
IST654I  I/O TRACE = OFF, BUFFER TRACE = OFF
IST355I  LOGICAL UNITS:
IST080I  RAOTNNC0 ACT/S            RAOTNNC1 ACTIV      RAOTNNC2 ACTIV
IST080I  RAOTNNC3 ACTIV            RAOTNNC4 ACTIV      RAOTNNC5 ACTIV
IST080I  RAOT0901 ACTIV            RAOT0902 ACTIV      RAOT0903 ACTIV
IST080I  RAOT0904 ACTIV            RAOT0905 ACT/S      RAOT0906 ACT/S
IST080I  RAOT0907 ACT/S            RAOT0908 ACTIV      RAOT0909 ACTIV
IST080I  RAOT090A ACTIV            RAOT090B ACTIV      RAOT090C ACTIV
IST080I  RAOT090D ACTIV            RAOT090E ACTIV      RAOT090F ACTIV
IST080I  RAOT090G ACTIV            RAOT090H ACTIV      RAOT090I ACTIV
IST080I  RAOT090J ACTIV

```

Figure 88. VTAM Status for the S/38 PU

Figure 88 displays the status of the PU RAOP09 for the S/38. Notice that the PU is seen as T2.1 after activation.

```

NCCF      N E T V I E W              RABAN WTCR21    05/26/89 09:42:57
C RABAN      DISPLAY NET,ID=RAOTNNC0,SCOPE=ALL
RABAN      IST097I  DISPLAY  ACCEPTED
' RABAN
IST075I  NAME = RAOTNNC0              , TYPE = LOGICAL UNIT
IST486I  STATUS= ACT/S              , DESIRED STATE= ACTIV
IST861I  MODETAB=MTGS3X  USSTAB=***NA*** LOGTAB=***NA***
IST934I  DLOGMOD=MODS361
IST597I  CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST081I  LINE NAME = RAOL0020, LINE GROUP = RAOGSFLO, MAJNOD = RAONCP0
IST135I  PHYSICAL UNIT = RAOP09
IST082I  DEVTYPE = INDEPENDENT LU  <-----
IST654I  I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I  ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000000
IST206I  SESSIONS:
IST634I  NAME      STATUS      SID      SEND RECVR TP NETID
IST635I  RAOAS4A  ACTIV-S      CF0384B97B360168  <----  0 0 USIBMRA
IST635I  RAOAS4A  ACTIV-P      CE773A1F55262F02      0 0 USIBMRA
IST314I  END

```

Figure 89. VTAM LU Status for the S/38 Independent LU

Figure 89 displays the status of the LU for the S/38. Notice the new device type of "independent LU". VTAM recognizes that it is an independent LU because of the LOCADDR=0 in the NCP major node. If you look at the IST635I message, you will see that this S/38 LU (RAOTNNC0) has an active session with the AS/400 LU (RAOAS4A).

```

NCCF      N E T V I E W      RABAN WTCR21      05/26/89 09:43:22
C RABAN    DISPLAY NET,ID=RAOAS4A,SCOPE=ALL
RABAN      IST097I DISPLAY ACCEPTED
RABAN
IST075I    NAME = RAOAS4A      , TYPE = LOGICAL UNIT
IST486I    STATUS= ACT/S      , DESIRED STATE= ACTIV
IST861I    MODETAB=MTGS3X     USSTAB=***NA*** LOGTAB=***NA***
IST934I    DLOGMOD=MODS361
IST597I    CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST135I    PHYSICAL UNIT = RAOP13
IST136I    SWITCHED SNA MAJOR NODE = SWAPPC
IST082I    DEVTYPE = INDEPENDENT LU
IST654I    I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I    ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000000
IST206I    SESSIONS:
IST634I    NAME      STATUS      SID      SEND RECV VR TP NETID
IST635I    RAOTNNC0  ACTIV-S     CE773A1F55262F02      0 0 USIBMRA
IST635I    RAOTNNC0  ACTIV-P     CF0384B97B360168  <----  0 0 USIBMRA
IST314I    END
???
```

Figure 90. VTAM LU Status for the AS/400 Independent LU

Figure 90 displays the status of the LU for the AS/400. Notice the new device type of "independent LU". VTAM recognizes that it is an independent LU because of the LOCADDR=0 in the NCP major node. If you look at the IST635I message, you will see that this AS/400 LU (RAOAS4A) has an active session with the S/38 LU (RAOTNNC0).

4.10 Establish DSPT Session from the AS/400

```
MAIN                      AS/400 Main Menu                      System:  RALYAS4A

Select one of the following:

    1. User tasks
    2. Office tasks
    3. General system tasks
    4. Files, libraries, and folders
    5. Programming
    6. Communications
    7. Define or change the system
    8. Problem handling
    9. Display a menu

    90. Sign off

Selection or command
====> STRPASTHR

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F23=Set initial menu

(C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 91. AS/400 Main Menu Screen

Enter the STRPASTHR command on the command line in Figure 91 to start the DSPT to the S/38. This command can be started from any screen that has a command line.

```
STRPASTHR                  Start Pass-Through

Type choices, press Enter.

Remote location name . . . . . raotnnc0      Name, *CNNDEV

Bottom

F3=Exit  F4=List  F5=Refresh  F11=Keywords  F12=Previous
F13=How to use this display
```

Figure 92. Start Pass-Through Screen

Enter in Figure 92 the remote location name of the S/38 with which you want to communicate. Because the AS/400 "thinks" this location resides in the host (Low Entry Network node) it has to be defined in the remote location list of this AS/400 and the location (LU) has to be defined in VTAM/NCP.

STRPASTHR		Start Pass-Through	
Type choices, press Enter.			
Remote location name	> RAOTNCO	Name, *	CNNDEV
Virtual controller	pasthr	Name, *	NONE
Virtual display device	*NONE	Name, *	NONE
+ for more values			
Mode	mods361	Name, *	NETATR
Local location name	raoas4a	Name, *	LOC, *NETATR
Remote network identifier	usibmra	Name, *	LOC, *NETATR, *NONE
System request program	*SRQMNU	Name, *	SRQMNU
Library		Name, *	LIBL, *CURLIB
			Bottom
F3=Exit F4=List F5=Refresh F11=Keywords F12=Previous			
F13=How to use this display			

Figure 93. Start Pass-Through Screen (continued)

In Figure 93 "pasthr" is the virtual controller defined on the S/38 which can be used for DSPT coming in from any system which supports DSPT.

Because the AS/400 is attached to the host via a switched line, a message will be sent to the QSYSOPR message queue to dial in on the host when you start the DSPT. The device to be used will be automatically created, varied on and attached to the right controller.

Then the signon screen of the S/38 as shown in Figure 94 will appear.

Enter user ID and password to sign on:		System:	RALY38A
User ID:		Subsystem:	QINTER
Password:		Device:	PASTRM01
(C) COPYRIGHT IBM CORP. 1980, 1986.			

Figure 94. Signon Screen S/38

The passthrough conversation from the AS/400 to the S/38 is now active and you are able to sign on to the S/38.

COMMAND ENTRY DISPLAY		System: RALY38A
:: endpasthr		
CF3 - Duplicate	CF4 - Prompt	CF7 - Low level messages

Figure 95. Command Entry Display Screen

To end the session with the S/38, type the CL command ENDPASTHR. This will return you to a local AS/400 screen.

4.11 Establish DSPT Session on the S/38

2: bgnpasthr	COMMAND ENTRY DISPLAY	System: RALY38A
CF3 - Duplicate	CF4 - Prompt	CF7 - Low level messages

Figure 96. S/38 Command Entry Display

To start DSPT to the AS/400 enter command BGNPASTHR + CMD 4 for prompting as shown in Figure 96 on page 87.

Begin Pass-Through (BGNPASTHR) Prompt			
Enter the following:			
Peer device name:	CNNDEV	R	raonn
	+ for more		
Virtual control unit name:	VRTCTLU	P	pt5250
Virtual display device name:	VRTDEV	P	*NONE
	+ for more		
System request program name:	SRQ10PGM	P	*SRQMNU
Library name:			

Figure 97. Begin Pass-Through Prompt

In Figure 97 on page 87, the BGNPASTHR command allows you to pass through to a target system. The peer device name is the local location name to be used for DSPT. The virtual control unit is the virtual controller defined in the target AS/400.

When you have finished using the DSPT session on the AS/400, you enter the ENDPASTHR command to terminate the DSPT session.

4.12 Traces

The following traces were taken on the AS/400 using the trace facility.

Commands/Responses:										
I	.....									Information
RR	.....									Receive Ready
RNR	.....									Receive Not Ready
REJ	.....									Reject
UI	.....									Unnumbered Information
SNRM	.....									Set Normal Response Mode
DISC	.....									Disconnect/Request Disconnect
TEST	.....									Test
SIM	.....									Set Initialization Mode
UP	.....									Unnumbered Poll
FRMR	.....									Frame Reject
CFGR	.....									Configure
DM	.....									Disconnected Mode
XID	.....									Exchange ID
BCN	.....									Beacon
SNRME	.....									Set Normal Response Mode Extended
UA	.....									Unnumbered Acknowledgment
*****	.....									Invalid Command/Response

COMMUNICATIONS TRACE										
Title:			06/28/89 05:26:14		Page: 3					
Record Number	S/R	Data Length	Record Status	Record Timer	Data Type	Controller Name/Number	Command	Number Sent	Number Received	Poll/Final
1	R	0	00000000	2E07		/FF XID				ON
2	S	84	00000000	2E07		/01 XID				ON
Data . . . : 32540561507800000000C0000000000001010B00000109000000007000E *.../&.....{.....*										
11F4E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C10E09F7C1C1C1C1C1C3E410 *4USIBMRA.RALYAS4A..7AAAAACU.*										
17F1161101130011F9F4F0F6C2F5F0F1F0F0F0F1F5F0F7F8 *.1.....9406B50100015078 *										
3	R	0	00000000	2E28		/FF XID				ON
4	S	84	00000000	2E28		/01 XID				ON
Data . . . : 32540561507800000000C0000000000001010B00000109000000007000E *.../&.....{.....*										
11F4E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C10E09F7C1C1C1C1C1C3E410 *4USIBMRA.RALYAS4A..7AAAAACU.*										
17F1161101130011F9F4F0F6C2F5F0F1F0F0F0F1F5F0F7F8 *.1.....9406B50100015078 *										
5	R	119	00000000	2E37		/01 XID				ON
Data . . . : 3477FFFFFDD000010844000000000000010B1000105A000000007000E *.....H!.....*										
0CF4E4E2C9C2D4D9C14BD9C1C20E08F1D9C1D6D5C3D7F00E07F7D9C1D6D7 *4USIBMRA.RAB..1RAONCP0..7RAOP*										
F1F3103700161101130011F3F7F2F5F0F0F0F0F0F0F1F8F2F5201104 *13.....3725000000001825...*										
0E02F5F6F6F8F8F5F4F0F1F3F0F00804F0F4F0F3F0F007098901371658 *.566885401300..040300..I....*										
6	S	84	00000000	2E37		/01 XID				ON
Data . . . : 32540561507800000000C0000000000001010B00000109000000007000E *.../&.....{.....*										
11F4E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C10E09F7C1C1C1C1C1C3E410 *4USIBMRA.RALYAS4A..7AAAAACU.*										
17F1161101130011F9F4F0F6C2F5F0F1F0F0F0F1F5F0F7F8 *.1.....9406B50100015078 *										
7	R	119	00000000	2E55		/01 XID				ON
Data . . . : 3477FFFFFDD000010844000000000000010B1000105A000000007000E *.....D!.....*										
0CF4E4E2C9C2D4D9C14BD9C1C20E08F1D9C1D6D5C3D7F00E07F7D9C1D6D7 *4USIBMRA.RAB..1RAONCP0..7RAOP*										
F1F3103700161101130011F3F7F2F5F0F0F0F0F0F0F1F8F2F5201104 *13.....3725000000001825...*										
0E02F5F6F6F8F8F5F4F0F1F3F0F00804F0F4F0F3F0F007098901371658 *.566885401300..040300..I....*										
8	S	84	00000000	2E55		/01 XID				ON
Data . . . : 32540561507800000000C0000000000001010B00000109000000007000E *.../&.....{.....*										
11F4E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C10E09F7C1C1C1C1C1C3E410 *4USIBMRA.RALYAS4A..7AAAAACU.*										
17F1161101130011F9F4F0F6C2F5F0F1F0F0F0F1F5F0F7F8 *.1.....9406B50100015078 *										
9	R	0	00000000	2E5B		/01 SNRM				ON
10	S	0	00000000	2E5B		/01 UA				ON
13	R	18	00000000	2E65	EBCDIC P24025D	/01 I		0	0	OFF
Data . . . : 2D000000039C6B800011020105000000000B *.....*										

Figure 98. AS/400 Trace for Scenario 1

```

COMMUNICATIONS TRACE      Title:                                06/28/89 05:26:39      Page: 1
Trace Description . . . . . :
Line name . . . . . : L24025
Line protocol . . . . . : SDLC
Start Date/Time . . . . . : 06/28/89 05:21:55
End Date/Time . . . . . : 06/28/89 05:26:07
Bytes collected . . . . . : 11385
Buffer size . . . . . : 3      1=128K, 2=256K, 3=2048K
Data direction . . . . . : 3      1=Sent, 2=Received, 3=Both
Stop on buffer full . . . . . : N      Y=Yes, N=No
Format SNA data only . . . . . : Y      Y=Yes, N=No
Format RR, RNR commands . . . . . : N      Y=Yes, N=No
Controller Name . . . . . : *ALL      *ALL, name
COMMUNICATIONS TRACE      Title:                                06/28/89 05:26:39      Page: 2

Record Number . . . . . Number of record in trace buffer (decimal)
S/R . . . . . S=Sent R=Received M=Modem Change
Controller name . . . . . Name of Controller associated with record
SNA Data . . . . . TH, RH and RU for record
TH . . . . . Transmission Header
RH . . . . . Request/Response Header
RU . . . . . Request/Response Unit
TH Parameter Descriptions:
FID . . . . . Format Identification
MPF . . . . . Mapping Field (segment of Basic Information
Unit (BIU) - ONLY, FIRST, MIDDLE, LAST)
OAF . . . . . Origination Address Field
DAF . . . . . Destination Address Field
SNF . . . . . Sequence Number Field
DCF . . . . . Data Count Field
LA . . . . . Local Address
ODAI . . . . . OAF-DAF Assignor Indicator
EFI . . . . . Expedited Flow Indicator
LU . . . . . Logical Unit
SSCP . . . . . System Services Control Point
PU . . . . . Physical Unit
RH Parameter Descriptions:
REQ . . . . . Request
RSP . . . . . Response
RH Category Descriptions:
NC . . . . . Network Control
SC . . . . . Session Control
DFC . . . . . Data Flow Control
NC . . . . . Network Control
FMD . . . . . Function Management Data
FMH . . . . . Function Management Header
RH Indicators:
FI . . . . . Format Indicator
SDI . . . . . Sense Data Included Indicator
BCI . . . . . Begin Chain Indicator
ECI . . . . . End Chain Indicator
DR1 . . . . . Definite Response 1 Indicator
DR2 . . . . . Definite Response 2 Indicator
ERI . . . . . Exception Response Indicator
RTI . . . . . Response Type Indicator
QRI . . . . . Queued Response Indicator
EBI . . . . . End Bracket Indicator
CDI . . . . . Change Direction Indicator
PI . . . . . Pacing Indicator
BBI . . . . . Begin Bracket Indicator
CSI . . . . . Code Selection Indicator
EDI . . . . . Enciphered Data Indicator
PDI . . . . . Padded Data Indicator
CEBI . . . . . Conditional End Bracket Indicator
RLWI . . . . . Request Larger Window Indicator

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Figure 99. AS/400 Trace for Scenario 1 (continued)

COMMUNICATIONS TRACE				Title:	06/28/89 05:26:39	Page: 3
Record Number	S/R	Controller Name	Data Type	SNA Data: TH, RH, RU		
13	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=00, SNF'=039C, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
			RU Command	ACTPU		
			RU Data	110201050000000000		
17	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=00, SNF'=039C, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
			RU Command	ACTPU		
			RU Data	11114040404040404000000701000000000000		
19	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=00, SNF'=039D, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
			RU Command	ACTLU		
			RU Data	000201		
20	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=039E, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
			RU Command	ACTLU		
			RU Data	000201		
27	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=00, OAF'=02, SNF'=0000, EFI RH : ('6B8100'X) REQ SC, FI, BCI, ECI, DR1, PI		
			RU Command	BIND		
			RU Data	31001307B0B051B307878686870706020000000000000102340000FE4E2 C9C2D4D9C14BD9C1D6C1E2F4C126000902E2D5C1E2E5C3D4C70903002590 0D9B4000941004E4E2C9C2D4D9C14BD9C1D6C1E2F4C10010E4E2C9C2D4D9 C14BD9C1D6E3D5D5C3F06019CE773A1F55262EF310E4E2C9C2D4D9C14BD9 C1D3E8C1E2F4C12C0A04087BC3D6D5D5C3E32B14010112461080010BE4 E2C9C2D4D9C14BD9C1C200		*.....GFFG.....US* *IBMRA.RAOAS4A....SNASVCMG.....* *..M..USIBMRA.RAOAS4A..USIBMR* *A.RAOTNNC0-.....3.USIBMRA.R* *ALYAS4A....#CONNECT.....U* *SIBMRA.RAB.*
COMMUNICATIONS TRACE				Title:	06/28/89 05:26:39	Page: 4
Record Number	S/R	Controller Name	Data Type	SNA Data: TH, RH, RU		
28	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=01, SNF'=039D, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
			RU Command	ACTLU		
			RU Data	0D010100850000000C0E010001000000404040404040		*....E.....*
38	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=039E, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
			RU Command	ACTLU		
			RU Data	0D010100850000000C0E010001000000404040404040		*....E.....*
62	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=00, SNF'=0000, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
			RU Command	BIND		
			RU Data	31001307B0B051B3008085858000060200000000000000234000001F00 0902E2D5C1E2E5C3D4C709030025900D9B4000940905D9C1D6E3D5D5C3F0 00006019CE773A1F55262EF310E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C1		*.....EE.....* *..SNASVCMG.....M..RAOTNNC0* *..3.USIBMRA.RALYAS4A*
65	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=13, SNF'=03AF, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
			RU Command	ACTLU		
			RU Data	0D010100850000000C0E010001000000404040404040		*....E.....*

Figure 100. AS/400 Trace for Scenario 1 (continued)

COMMUNICATIONS TRACE				Title:	06/28/89 05:26:39	Page: 7
Record Number	S/R	Controller Name	Data Type	SNA Data: TH, RH, RU		
71	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=00, OAF'=02, SNF'=0001 RH : ('089520'X) REQ FMD, FI, BCI, ECI, DR1, ERI, RLWI, PI, CDI		
			RU Command			
			RU Data	0C0502FF0003D000000206F100181210020000000000000000400040007D4 *.....}....1.....M*		
				D6C4E2F3F6F1 *ODS361 *		
73	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=00, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
			RU Data	000002 *		
78	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=00, SNF'=0001 RH : ('839101'X) REQ FMD, BCI, ECI, DR1, ERI, PI, CEBI		
			RU Data	001812100A00000000000000040007D4D6C4E2F3F6F1 *.....MODS361 *		
79	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=00, SNF'=0001 RH : ('088000'X) REQ FMD, FI, BCI, ECI, DR1		
			RU Command	NMVT		
			RU Data	41038D00000000000000021008004928001994ED00EC0000001000000000 *.....KH..M.....*		
				000004000A001400320064 *		
81	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=00, OAF'=02, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
			RU Data	000007 *		
82	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=0000, EFI RH : ('6B8100'X) REQ SC, FI, BCI, ECI, DR1, PI		
			RU Command	BIND		
			RU Data	31001307B0B051B307878585870706020000000000000102340000FE4E2 *.....GEE6.....US*		
				C9C2D4D9C14BD9C1D6C1E2F4C125000802D4D6C4E2F3F6F109030025901B *IBMRA.RAOAS4A....MODS361.....*		
				CF0000471004E4E2C9C2D4D9C14BD9C1D6C1E2F4C10010E4E2C9C2D4D9C1 *.....USIBMRA.RAOAS4A..USIBMRA*		
				4BD9C1D6E3D5D5C3F06019CE773A1F55262EF410E4E2C9C2D4D9C14BD9C1 *.RAOTNNCO.....4.USIBMRA.RA*		
				D3E8C1E2F4C12C0A01087BC3D6D5D5C3E32B14010112461000010BE4E2 *LYAS4A.....#CONNECT.....US*		
				C9C2D4D9C14BD9C1C200 *IBMRA.RAB. *		
84	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=01, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
			RU Data	007FFF *		
86	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=00, SNF'=0001 RH : ('8F9000'X) RSP FMD, FI, SDI, DR1, RTI		
			Sense Code	08060000,		
			RU Command	NMVT		
			RU Data	41038D *...		

Figure 101. AS/400 Trace for Scenario 1 (continued)

COMMUNICATIONS TRACE				Title:	06/28/89 05:26:39	Page: 11
Record Number	S/R	Controller Name	Data Type	SNA Data: TH, RH, RU		
412	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=00, SNF'=1111 RH : ('0B8000'X) REQ FMD, FI, BCI, ECI, DR1		
		RU Command		REQDISCONT		
		RU Data		01021B80	*....	
414	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=00, SNF'=1111 RH : ('8B8000'X) RSP FMD, FI, DR1		
		RU Command		REQDISCONT		
		RU Data		01021B	*...	
415	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=00, SNF'=039E, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
		RU Command		DACTLU		
		RU Data		0E	*	
416	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=039F, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
		RU Command		DACTLU		
		RU Data		0E	*	
417	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=03, OAF'=00, SNF'=03A0, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
		RU Command		DACTLU		
		RU Data		0E	*	
418	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=04, OAF'=00, SNF'=03A1, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
		RU Command		DACTLU		
		RU Data		0E	*	
419	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=05, OAF'=00, SNF'=03A2, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
		RU Command		DACTLU		
		RU Data		0E	*	
420	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=06, OAF'=00, SNF'=03A3, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
		RU Command		DACTLU		
		RU Data		0E	*	
422	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=01, SNF'=039E, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
		RU Command		DACTLU		
		RU Data		0E	*	
423	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=039F, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
		RU Command		DACTLU		
		RU Data		0E	*	
425	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=07, OAF'=00, SNF'=03A4, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
		RU Command		DACTLU		
		RU Data		0E	*	

Figure 105. AS/400 Trace for Scenario 1 (continued)

COMMUNICATIONS TRACE				Title:	06/28/89 05:26:39	Page: 12
Record Number	S/R	Controller Name	Data Type	SNA Data: TH, RH, RU		
426	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=08, OAF'=00, SNF'=03A5, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
		RU Command	DACTLU			
		RU Data	0E			*
427	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=09, OAF'=00, SNF'=03A6, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
		RU Command	DACTLU			
		RU Data	0E			*
428	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=0A, OAF'=00, SNF'=03A7, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
		RU Command	DACTLU			
		RU Data	0E			*
429	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=0E, OAF'=00, SNF'=03AB, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
		RU Command	DACTLU			
		RU Data	0E			*
430	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=0F, OAF'=00, SNF'=03AC, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
		RU Command	DACTLU			
		RU Data	0E			*
431	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=10, OAF'=00, SNF'=03AD, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
		RU Command	DACTLU			
		RU Data	0E			*
433	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=03, SNF'=03A0, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
		RU Command	DACTLU			
		RU Data	0E			*
434	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=04, SNF'=03A1, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
		RU Command	DACTLU			
		RU Data	0E			*
435	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=05, SNF'=03A2, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
		RU Command	DACTLU			
		RU Data	0E			*
436	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=06, SNF'=03A3, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
		RU Command	DACTLU			
		RU Data	0E			*
437	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=07, SNF'=03A4, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
		RU Command	DACTLU			
		RU Data	0E			*

Figure 106. AS/400 Trace for Scenario 1 (continued)

COMMUNICATIONS TRACE				Title:	06/28/89 05:26:39	Page: 13
Record Number	S/R	Controller Name	Data Type	SNA Data: TH, RH, RU		
439	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=11, OAF'=00, SNF'=03AE, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
		RU Command		DACTLU		
		RU Data		0E	*	
440	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=12, OAF'=00, SNF'=03AF, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
		RU Command		DACTLU		
		RU Data		0E	*	
441	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=13, OAF'=00, SNF'=03B0, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
		RU Command		DACTLU		
		RU Data		0E	*	
442	R	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=14, OAF'=00, SNF'=03B1, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
		RU Command		DACTLU		
		RU Data		0E	*	
444	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=08, SNF'=03A5, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
		RU Command		DACTLU		
		RU Data		0E	*	
445	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=09, SNF'=03A6, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
		RU Command		DACTLU		
		RU Data		0E	*	
446	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=0A, SNF'=03A7, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
		RU Command		DACTLU		
		RU Data		0E	*	
447	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=0E, SNF'=03AB, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
		RU Command		DACTLU		
		RU Data		0E	*	
448	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=0F, SNF'=03AC, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
		RU Command		DACTLU		
		RU Data		0E	*	
449	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=10, SNF'=03AD, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
		RU Command		DACTLU		
		RU Data		0E	*	
450	S	P24025D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=11, SNF'=03AE, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
		RU Command		DACTLU		
		RU Data		0E	*	

Figure 107. AS/400 Trace for Scenario 1 (continued)

COMMUNICATIONS TRACE				Title:	06/28/89 05:26:39	Page: 14
Record Number	S/R	Controller Name	Data Type	SNA Data: TH, RH, RU		
455	S	P24025D	EBCDIC	TH : FID=2, MPF=Only RH : ('EB8000'X) RSP SC, FI, DR1	/ ODAI=0, DAF'=00, OAF'=12, SNF'=03AF, EFI	
		RU Command	DACTLU			
		RU Data	0E		*	
456	S	P24025D	EBCDIC	TH : FID=2, MPF=Only RH : ('EB8000'X) RSP SC, FI, DR1	/ ODAI=0, DAF'=00, OAF'=13, SNF'=03B0, EFI	
		RU Command	DACTLU			
		RU Data	0E		*	
457	S	P24025D	EBCDIC	TH : FID=2, MPF=Only RH : ('EB8000'X) RSP SC, FI, DR1	/ ODAI=0, DAF'=00, OAF'=14, SNF'=03B1, EFI	
		RU Command	DACTLU			
		RU Data	0E		*	
459	R	P24025D	EBCDIC	TH : FID=2, MPF=Only RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1	/ ODAI=0, DAF'=00, OAF'=00, SNF'=039D, EFI	
		RU Command	DACTPU			
		RU Data	1202		*..	
461	S	P24025D	EBCDIC	TH : FID=2, MPF=Only RH : ('EB8000'X) RSP SC, FI, DR1	/ ODAI=0, DAF'=00, OAF'=00, SNF'=039D, EFI	
		RU Command	DACTPU			
		RU Data	1202		*..	
***** END OF COMMUNICATIONS TRACE OUTPUT *****						

Figure 108. AS/400 Trace for Scenario 1 (continued)

5.0 Scenario 2: AS/400A, AS/400B and PS/2 Adjacent to the Host

5.1 Environment tested

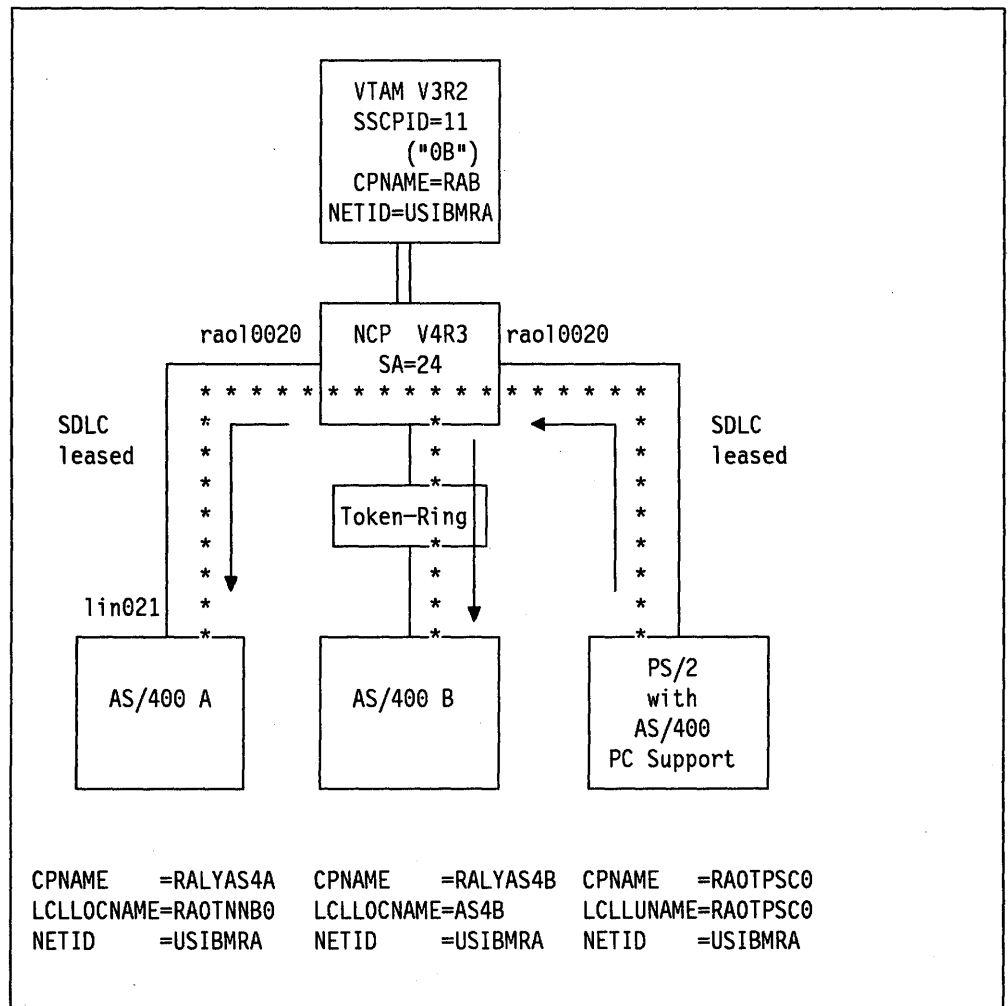


Figure 109. Scenario 2

In 5.2, "Section 1: Definitions on the AS/400A (RALYAS4A)" on page 101 we will describe the definitions required to connect AS/400A and a PS/2 (via the same multipoint line RAOL0020) to an S/370 subarea network. Also described is how the PS/2 can establish sessions with the AS/400A situated behind the S/370 subarea network while using AS/400 PC Support.

In 5.11, "Section 2: Definitions on AS/400B (RALYAS4B)" on page 134 we will describe the definitions required to connect AS/400B to the S/370 subarea network via a token-ring and the additional definitions required on the PS/2 to support the AS/400B. We will also describe how the PS/2 can establish sessions at the same time with both AS/400A and AS/400B that are situated behind the S/370 subarea network while using AS/400 PC Support.

This chapter will take you through the definition process for the AS/400A, AS/400B, PS/2 and VTAM/NCP screen by screen. We have done this purely for presentation purposes only and would strongly recommend the use of CL programs for the creation of the AS/400 definitions. Examples of the CL programs are in Chapter 7 "Definitions".

5.2 Section 1: Definitions on the AS/400A (RALYAS4A)

When you are going to connect an AS/400 as an APPN node to an S/370 subarea to support independent LUs you are required to perform the following steps:

- Check the network attributes
- Create a line description from the AS/400 to VTAM/NCP
- Create a host controller description for the S/370 host
- Create an entry the APPN local location list
- Create a mode entry.

5.2.1 Network Attributes

The network attributes contain the AS/400's local system values for APPN. You can display these attributes by using the DSPNETA command or by going to menu "NETWORK".

MAIN

AS/400 Main Menu

System: RALYAS4A

Select one of the following:

1. User tasks
2. Office tasks
3. General system tasks
4. Files, libraries, and folders
5. Programming
6. Communications
7. Define or change the system
8. Problem handling
9. Display a menu

90. Sign off

Selection or command
==> dspneta

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
F23=Set initial menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 110. AS/400 Main Menu Screen

Type DSPNETA to display the network attributes.

Display Network Attributes		System: RALYAS4A
Current system name	:	RALYAS4A
Pending system name	:	
Local network ID	:	USIBMRA
Local control point name	:	RALYAS4A
Default local location	:	RALYAS4A
Default mode	:	MODS361
Maximum number of conversations for a remote location	:	64
APPN node type	:	*NETNODE
Maximum number of intermediate sessions	:	200
Route addition resistance	:	128
Server network ID/control point name	:	
		More...
Press Enter to continue.		
F3=Exit F12=Previous		

Figure 111. Display Network Attributes Screen

Notice we have defined the local control point name, local network ID, default location name and APPN node type. You can change these parameters by the CHGNETA command or by selecting option 2 from the "NETWORK" menu.

Display Network Attributes		System: RALYAS4A
Alert status	:	*UNATTEND
Alert primary focal point	:	*NO
Alert default focal point	:	*NO
Alert logging status	:	*ALL
Alert controller description	:	P24020D
Message queue	:	QSYSOPR
Library	:	QSYS
Output queue	:	QPRINT
Library	:	QGPL
Job action	:	*FILE
Maximum hop count	:	16
DDM request access	:	*OBJAUT
PC Support request access	:	*OBJAUT
Press Enter to continue		
F3=Exit F12=Previous		

Figure 112. Display Network Attributes Screen (continued)

P24020D is the alert controller description which can be used to send up alerts coming from this APPN network to NetView. For more information on alerts see *Management of AS/400 in SNA Subarea Network using Network Products*.

5.2.2 Create Line Description

The first step in defining an AS/400 to a S/370 subarea network is to create the line description. You can do this by either following the screens documented or by using the CL command CRTLNSDLC.

```
MAIN                               AS/400 Main Menu                               System:  RALYAS4A

Select one of the following:

    1. User tasks
    2. Office tasks
    3. General system tasks
    4. Files, libraries, and folders
    5. Programming
    6. Communications
    7. Define or change the system
    8. Problem handling
    9. Display a menu

    90. Sign off

Selection or command
====> 6

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F23=Set initial menu

(C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 113. AS/400 Main Menu Screen

Select option 6 in Figure 113 for the Communications screen.

```
CMN                               Communications                               System:  RALYAS4A

Select one of the following:

    1. Communication status
    2. Messages
    3. Remote jobs
    4. Configure communications
    5. Network management
    6. Network configuration
    7. Verify communications
    8. Send or receive files
    9. Jobs

    70. Related commands

Selection or command
====> 4

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 114. Communications Screen

Select option 4 in Figure 114 to Configure communications.

CFGCHN	Configure Communications and Remote Hardware	System: RALYAS4A
Select one of the following:		
1. Lines 2. Communications controllers 3. Work station controllers 4. Communications devices 5. Printers 6. Display stations 7. Modes 8. Classes-of-service 9. Configure address and location lists		
Selection or command		
===> 1		
F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support F16=System main menu		
(C) COPYRIGHT IBM CORP. 1980, 1988.		

Figure 115. Configure Communications and Remote Hardware Screen

Select option 1 in Figure 115 to define your line description.

Work with Line Descriptions		System: RALYAS4A
Position to	Starting character(s)	
Type options, press Enter.		
2=Change 3=Copy 4=Delete 5=Display 6=Print		
Opt	Line	Text
	L24025	*SDLC SNA/SDLC Switched to SA24
Parameters for option 2 or command		More...
===>		
F3=Exit F4=Prompt F5=Refresh F6=Create F9=Retrieve F12=Previous F14=Work with status		
(C) COPYRIGHT IBM CORP. 1980, 1988.		

Figure 116. Work with Line Descriptions Screen

Select option F6 in Figure 116 to create the line description.

Create Line Description		
Type choices, press Enter.		
New line description	124020	Name
Line type	*sdlc	*ASYN=Asynchronous communications *BSC=Binary synchronous communications *SDLC=Synchronous data link control *TDL=Twinsaxial data link control *TRLAN=Token-Ring local area network *X25=X.25 communications network
F3=Exit F12=Previous		

Figure 117. Create Line Description Screen

The line type we are using is *SDLC.

```

CRTLINS DLC          Create Line Desc (SDLC)

Type choices, press Enter.

Label . . . . .
Line description . . . . . > L24020      Name
Resource name . . . . . > LIN021        Name
Online at IPL . . . . . > *NO           *YES, *NO
Data link role . . . . . > *SEC          *NEG, *PRI, *SEC
Physical interface . . . . . *RS232V24   *RS232V24, *V35, *X21...
Connection type . . . . . > *MP          *NONSWTPP, *SWTPP, *MP
                                                    Bottom
F3=Exit  F4=List  F5=Refresh  F10=Additional parameters  F11=Keywords
F12=Previous  F13=How to use this display

```

Figure 118. Create Line Description (SDLC) Screen

The resource name is the name of the physical communications port on the AS/400. It can be found by executing the command WRKHDWPRD and taking the option to work with your rack configuration.

The data link role is always *SEC when the AS/400 is connected to a S/370 host.

We will be using a multipoint line so the connection type will be *MP.

```

CRTLINS DLC          Create Line Desc (SDLC)

Type choices, press Enter.

Label . . . . .
Line description . . . . . > L24020      Name
Resource name . . . . . > LIN021        Name
Online at IPL . . . . . *YES            *YES, *NO
Data link role . . . . . > *SEC          *NEG, *PRI, *SEC
Physical interface . . . . . *RS232V24   *RS232V24, *V35, *X21...
Connection type . . . . . > *MP          *NONSWTPP, *SWTPP, *MP
Switched network backup . . . . . *NO    *NO, *YES
Exchange identifier . . . . . > *SYSGEN   05600000-056FFFFF, *SYSGEN
NRZI data encoding . . . . . *YES        *YES, *NO
Maximum controllers . . . . . > 5         1-254
Line speed . . . . . 9600                600, 1200, 2400, 4800...
Modem type supported . . . . . *NORMAL    *NORMAL, *V54, *IBMWRAP...
Maximum frame size . . . . . > 521        265, 521, 1033, 2057
Duplex . . . . . *HALF                    *HALF, *FULL
Inactivity timer . . . . . 300            *NOMAX, 150-4200 (0.1 sec)
                                                    More...
F3=Exit  F4=List  F5=Refresh  F10=Additional parameters  F11=Keywords
F12=Previous  F13=How to use this display

```

Figure 119. Create Line Description (SDLC) Screen (continued)

In Figure 119 the Exchange identifier parameter is not needed because it is a leased line.

NRZI data encoding should match your NRZI parameter in the VTAM definitions.

The maximum frame size is set to 521.

In our scenario the AS/400 is defined as secondary on a multipoint line and should therefore be defined as *HALF duplex even if the modems used support *FULL duplex lines.

```
CRTLINS DLC          Create Line Desc (SDLC)

Type choices, press Enter.

Poll response delay . . . . . 0          0-2048 (0.0001 seconds)
Text 'description' . . . . . > 'SNA/SDLC Leased to SA24'

Comment . . . . .

F3=Exit  F4=List  F5=Refresh  F10=Additional parameters  F11=Keywords
F12=Previous  F13=How to use this display
```

Figure 120. Create Line Description (SDLC) Screen (continued)

Press Enter to create your line description to the host. It will return you to the Work with Line Descriptions screen.

5.2.3 Create Host Controller Description

Now you must create a host controller description which describes the S/370 host to which it is connected. Creation can be done interactively through the following screens or enter the CL command CRTCTLHOST.

```
CFGCMN          Configure Communications and Remote Hardware
                                     System:  RALYAS4A
Select one of the following:

  1. Lines
  2. Communications controllers
  3. Work station controllers
  4. Communications devices
  5. Printers
  6. Display stations
  7. Modes
  8. Classes-of-service
  9. Configure address and location lists

Selection or command
====> 2

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu
```

Figure 121. Configure Communications and Remote Hardware Screen

Select option 2 in Figure 121 to configure your host controller.

```
                                Work with Controller Descriptions
                                     System:  RALYAS4A
Position to  .. . . .           Starting character(s)

Type options, press Enter.
  2=Change  3=Copy  4=Delete  5=Display  6=Print

Opt  Controller  Type  Text
   QESCTL      *HOST  Service Support controller
   QTICTL      *HOST  TIE, TIA, QA control unit description
   RSCSCTLD    *BSC   Ctl description for RSCS/PROFS Bridge
                                     More...

Parameters for option 2 or command
====>

F3=Exit  F4=Prompt  F5=Refresh  F6=Create  F9=Retrieve  F12=Previous
F14=Work with status
```

Figure 122. Work with Controller Descriptions Screen

Select F6 to create your host controller description.

Create Controller Description		
Type choices, press Enter.		
New controller description	p24020d	Name
Controller type/class	*host	*APPC=Advanced program-to-program communications *ASYN=Asynchronous communications *BSC=Binary synchronous communications *FNC=Finance *HOST=SNA host
F3=Exit F12=Previous		

Figure 123. Create Controller Description Screen

We will be defining *HOST as our controller type as we will be communicating to an SNA host and will have the support of dependent and independent LUs.

You can also define the controller type as *APPC to describe the attributes of the host but then it will only support independent LUs.

CRTCTLHOST Create Ctl Desc (SNA Host)		
Type choices, press Enter.		
Label		Name
Controller description	> P24020D	
Link type	> *SDLC	*SDLC, *TRLAN, *X25
Online at IPL	*YES	*YES, *NO
Switched line	*NO	*NO, *YES
Switched network backup	*NO	*NO, *YES
APPN capable	> *YES	*YES, *NO
Attached nonswitched line	> L24020	Name
Maximum frame size	> 521	*LINKTYPE, 265, 521, 1033...
Remote network identifier	> USIBMRA	Name, *NETATR, *NONE
Remote control point name	> RAB	Name
SSCP identifier		050000000000-05FFFFFFFF
Station address	> C4	01-FE
APPN CP session support	> *NO	*YES, *NO
APPN node type	> *LENNODE	*ENDNODE, *LENNODE...
APPN transmission grp number	1	1-20, *CALC
More...		
F3=Exit F4=List F5=Refresh F10=Additional parameters F11=Keywords		
F12=Previous F13=How to use this display		

Figure 124. Create Controller Description (SNA Host) Screen

In Figure 124 we will be defining "APPN capable" as *YES which means the host device descriptions for independent LUs will be automatically created using the information defined in the network attributes, the associated mode description, the location list and the application program. Device descriptions that are automatically created are also automatically varied on and attached to the right controller. It means that the local system will appear as an End Node or Network Node to the adjacent system.

We must also match the nonswitched line name to the line name we have just created.

The remote network identifier and remote control point name must match those defined in the VTAM startup list. Remember that the S/370 subarea does not support CP-to-CP sessions so you must define "APPN CP session support" to *NO.

The station address must match the PU address in the VTAM/NCP major node definition.

A S/370 host is defined as a *LENNODE in an APPN network.

Press Enter to create your host controller description.

5.2.4 Configure Local and Remote Location Lists

If we define the host controller with APPN(*YES) then we do not have to manually create device descriptions for your independent LUs. This also applies to the device descriptions for the remote locations behind a S/370 subarea network which are defined in the APPN remote location list. The AS/400 will automatically create the device description, vary it on and attach it to the correct controller in the following situations.

- When a session is requested and the route chosen and the controller description doesn't already have a device description with the specified remote location name, remote NETID and local location name attached.
- When a BIND is received for a local location and the controller description doesn't already have a device description with the specified remote location name, remote NETID and local location name.

AS/400 APPN usually doesn't require remote locations to be defined as this information is dynamically added to the directory database through the searches when the AS/400 has CP-to-CP session support. However, when the AS/400 is connected to a Low Entry Network node (for example an S/370), entries need to be added in the remote location list for each LU with which we want to have sessions within the host or behind it. This information can't be obtained dynamically because the S/370 host doesn't support CP-CP sessions.

We don't have to create an entry for the PS/2 in the APPN remote location list because there is no session request from the AS/400 to the PS/2. The PS/2 with AS/400 PC Support can only request sessions to AS/400 PC Support on any AS/400 in the network.

A location entry must be defined in the local location list of the AS/400 to determine that the location with which the PS/2 wants to have sessions resides on this AS/400. The following screens will guide you through the creation of the APPN local location list.

CFGCMN

Configure Communications and Remote Hardware

System: RALYAS4A

Select one of the following:

1. Lines

2. Communications controllers

3. Work station controllers

4. Communications devices

5. Printers

6. Display stations

7. Modes

8. Classes-of-service

9. Configure address and location lists

Selection or command

==> 9

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support

F16=System main menu

Figure 125. Configure Communications and Remote Hardware Screen

Select option 9 to define APPN location lists.

The local location list defines the locations that are defined on the AS/400. The following screens will add RAOTNNB0 to the list.

```

CFGLST                      Configure Address and Location Lists
                                System:  RALYAS4A

Select one of the following:

    1. Asynchronous PAD network address lists
    2. Asynchronous remote location list
    3. APPN local location list
    4. APPN remote location list

Selection or command
===> 3

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu

                                (C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 126. Configure Address and Location Lists Screen

Select option 3 in Figure 126 to define an APPN local location list.

```

                                Work with Configuration Lists
                                System:  RALYAS4A

Position to . . . . . Starting character(s)

Type options, press Enter.
    2=Change  4=Delete  5=Display  6=Print

Opt List      Type      Text
  2  QAPPNLCL  *APPNLCL

Bottom

Parameters for option 2 or command
===>

F3=Exit  F4=Prompt  F5=Refresh  F6=Create  F9=Retrieve  F12=Previous
                                (C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 127. Work with Configuration Lists Screen

Select option 2 in Figure 127 to change the QAPPNLCL local list to add RAOTNNB0.

```

                                Define APPN Local Locations

Type new/changed information, press Enter.

Local
Location Entry
Name      Description
RAOAS4A   Local LU Name switch
RAOTNNB0  Local LU for leased

Local
Location Entry
Name      Description

More...

F3=Exit  F12=Previous  F17=Top of list  F18=Bottom of list

```

Figure 128. Define APPN Local Locations Screen

Enter the local location name and its description. We will use RAOTNNB0 which must match the LU name which is defined in the NCP LU macro for the AS/400.

5.2.5 Create Mode Description

The mode description describes the session characteristics and number of sessions that will be used to negotiate the allowable values between the local and remote locations. A mode with the same name must exist at both end points. There must also be a mode entry with the same name in VTAM/NCP.

This mode description, QPCSUPP, is created automatically when AS/400 PC Support is installed on your AS/400 and must be used with AS/400 PC Support.

In Figure 129 the mode characteristics of QPCSUPP are shown.

Display Mode Description		
Mode description name	MODD	QPCSUPP
Class-of-service	COS	#CONNECT
Maximum number of sessions	MAXSSN	64
Maximum conversations	MAXCNV	64
Locally controlled sessions	LCLCTLSSN	0
Pre-established sessions	PREESTSSN	0
Inbound pacing value	INPACING	7
Outbound pacing value	OUTPACING	7
Max length of request unit	MAXLENRU	2048
Text	TEXT	AS/400 PC Support mode entry
Press Enter to continue.		
F3=Exit F12=Previous		

Figure 129. Display Mode Descriptions Screen

The parameters defined here must match those defined on the remote location.

5.3 Relationship between AS/400 and VTAM/NCP for a Leased Line

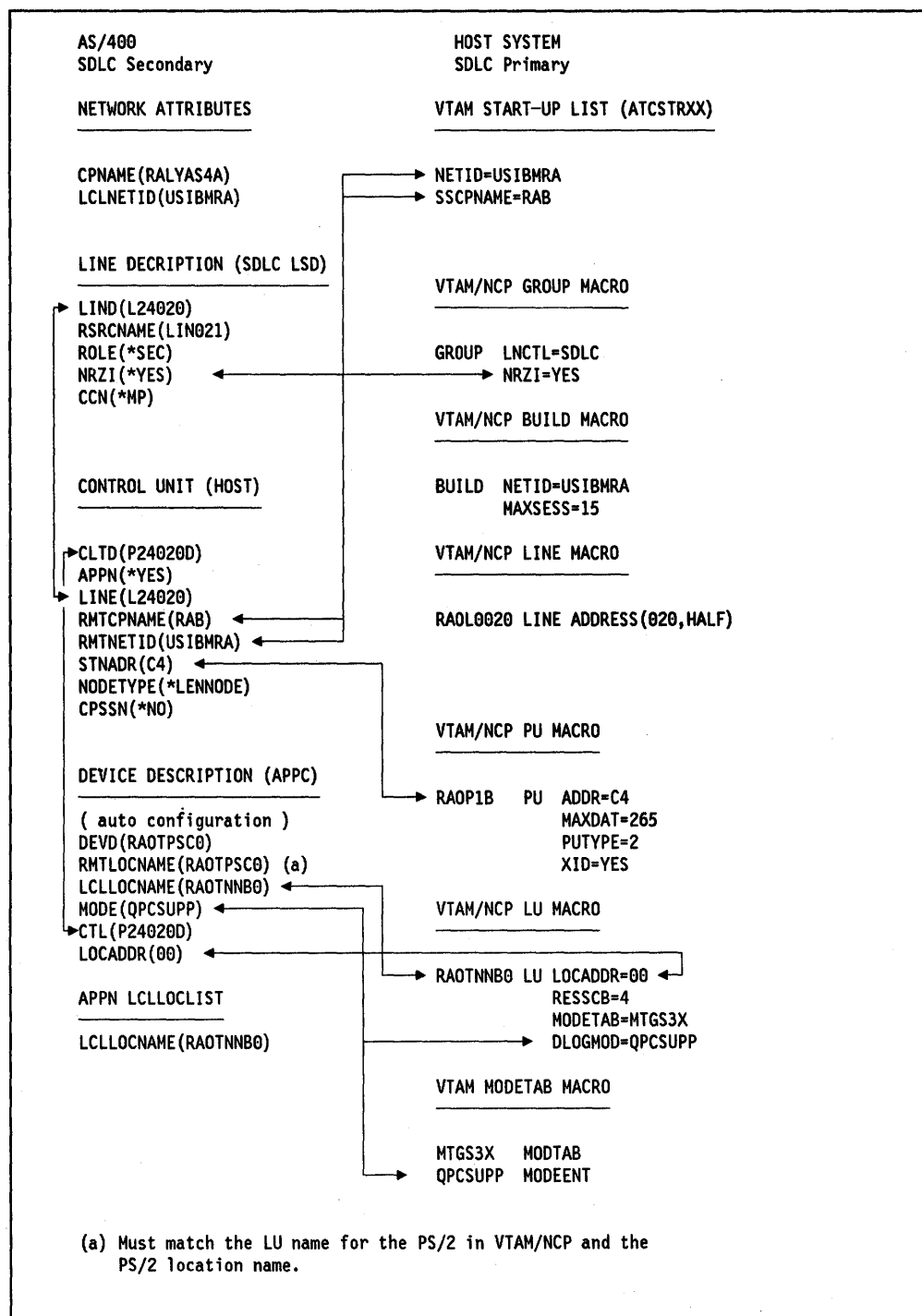


Figure 130. Defining a Leased Line between AS/400 and VTAM/NCP

5.4 Section 1: Definitions on the PS/2 (RAOTPSC0)

In order to configure the PS/2 with AS/400 PC Support to connect it to the S/370 subarea network we must perform the following:

- Install PC Support on the AS/400
- Initialize PC Support code on the AS/400
- Install PC Support on the PS/2
- Modify the CONFIG.SYS file on the PS/2
- Modify the CONFIG.PCS file on the PS/2
- Check the STARTPCS.BAT file on the PS/2.

We used a PS/2 model 60 with an IBM Multi-Protocol Adapter/A card to support the SDLC line connection between the PS/2 and the S/370 subarea network.

5.4.1 Install PC Support on the AS/400

Sign on to the AS/400 as security officer (QSECOFR) to install AS/400 PC Support. See SC21-9765 *AS/400 Licensed Programs Installation Guide* for installation instructions.

5.4.2 Initialize PC Support Code on the AS/400

You will have to run the CL command INZPCS in order to initialize AS/400 PC Support. All personal computers using PC Support need to have the same keyboard type and code pages. If you enter the command with no parameters, it will take the default from the system.

5.4.3 Install PC Support on the PS/2

In the following installation description we assume that DOS 3.30 has already been installed on the PS/2.

Insert the AS/400 PC Support (PCS) diskette into drive A and type: **A>INSTALL.**

Install Exit		F1=Help
|	1. Work station emulation	|
|	2. Enhanced 5250 emulation	|
|	3. Token-ring	|
|>	4. SDLC	|

|	Esc=Cancel	|

<p>Before you install AS/400 PC Support on your personal computer, ensure the AS/400 and personal computer requirements are complete, and you have obtained the required information to complete this installation program. For more information, refer to the AS/400 PC Support Installation Guide.</p>		

Figure 131. Installation Options Screen

Figure 131 is the screen that is displayed after you enter the INSTALL command. You will be installing the SDLC support so you will take option 4 on the hardware options screen.

Then the following screen will be displayed:

```

                          Installing AS/400 PC Support
                          (SDLC)
Complete the following with the information from the form; press Enter.

PCS directory drive          . . . (C)

PC location name            . . . . . (USIBMRA.RAOTPC0)

System name                 . . . . . (RAOTNNB0)

Local station address       . . . . . (C5) (01 - FE)

Which functions
will you use?               . . .>Organizer
                              >Work Station Function
                              >Message Function
                              >Virtual Printer
-----
Enter Esc=Cancel F1=Help F3=Exit

```

Figure 132. Installing AS/400 PC Support (SDLC) Screen

After entering these values, the PCS directory is created in the disk drive C and the PC Support files are copied from the AS/400 PC Support diskette to this directory. At the same time the CONFIG.SYS file is modified and the files CONFIG.PCS and STARTPCS.BAT are created using the information you have just entered. For an explanation of the parameters see Figure 135 on page 116.

Figure 133 displays the PCS directory when the installation is completed.

```

C:\PCS>dir

Volume in drive C is DOSTUG
Volume Serial Number is 2353-14EE
Directory of C:\PCS

ECYDDX  SYS      20384 08-31-88   8:44a
FSDD    SYS      49280 06-24-89   3:37a
EIMPCS  SYS       5520 06-24-89   3:37a
XXRTRS  MRI      13848 06-24-89   3:39a
FSPC    EXE      88640 06-24-89   3:37a
FSPC    HLP      12393 01-01-80  12:03a
STARTRTR EXE     70168 06-24-89   3:37a
STOPRTR EXE     42728 06-24-89   3:37a
SDLCRTR EXE     55664 06-24-89   3:39a
CONFIG  PCS       110 05-30-89  11:05a
STARTPCS BAT     554 05-30-89   8:59a
UPDATE  PCS       40 10-28-88   9:26a
      14 File(s)  21354496 bytes free

```

Figure 133. PCS Directory on Drive C Screen

5.4.4 Modify the CONFIG.SYS File on the PS/2

The CONFIG.SYS file is the PS/2 configuration file and not an AS/400 PC Support file. If you already have this file on your PS/2, the installation program will automatically add the device drivers to be used by the PC Support memory manager and shared folders. If you are using the workstation function, "files=15" will be added to the CONFIG.SYS file. If you are using a token-ring attachment, the device drivers for the LAN adapter handler will be included in CONFIG.SYS file.

We also included F=10 to the ECYDDX driver which allows ten files to be opened at one time and B=20 to the FSDD driver which sets aside twenty blocks (block size is 1880 bytes) of storage for cache buffering on the PS/2.

```
C>type CONFIG.SYS
files=15
break=on
lastdrive=Z
DEVICE=C:\PCS\EIMPCS.SYS
DEVICE=C:\PCS\ECYDDX.SYS F=10
DEVICE=C:\PCS\FSDD.SYS B=20
```

Figure 134. CONFIG.SYS File Screen

5.4.5 Modify the CONFIG.PCS File on the PS/2

This file is the PC Support configuration file on the PS/2. It is created with the parameters you defined when you installed PC Support on the PS/2. In Figure 135 you can see the default CONFIG.PCS file that was created.

```
C>cd PCS

C:\PCS>type CONFIG.PCS.
RTYP SDLC
RTLN USIBMRA.RAOTPSC0
SDLI RAOTNNB0,C5
```

Figure 135. CONFIG.PCS Default File Screen

We will now tailor this CONFIG.PCS file to add in the parameters for the SDLC leased line connection to the S/370 subarea network.

In Figure 136 on page 117 the following parameters are defined:

- **RTYP SDLC** specifies the router to use when communicating with the AS/400 behind the S/370 subarea.
- **RTLN USIBMRA.RAOTPSC0** uniquely identifies the PS/2 to the network. The network identifier is USIBMRA and the PC location name is RAOTPSC0. This name is sent to the AS/400 whenever the router makes contact and it must match the LU name in the NCP of the PS/2.
- **SDLI RAOTNNB0,C5,RUSSELL** specifies the link identification and must be in the CONFIG.PCS file when the IBM SDLC router is used. Link identification includes the system name (which must match the local location name on the AS/400 and the LU name in VTAM/NCP for the AS/400), local station

address (which must match the PU address in VTAM/NCP for the PS/2) and user ID (which must be a valid user profile on the AS/400).

- **RTDN RAOTNNB0** specifies the default system name used to start conversations if a name is not used. In this case it is the AS/400 local location name.
- **SDLT MP** specifies that the line type is a nonswitched multi-point line. If you were using a leased line it would be NONSWPP.
- **RTCU RUSSELL** specifies the common user ID to be used if it hasn't been defined on the ADRS, EMLI or TRLI identifiers. It also will be used when the user ID is prompted by the start router command.
- **SDDE YES** specifies that NRZI data coding will be used. It must match with the NRZI parameter you defined in VTAM/NCP for this PS/2.
- **SDMR FULL** specifies that the line will operate at 100% of the selected data rate on the modem if it supports the rate select feature.
- **SDLF HALF** specifies half duplex for the line. This means that the line/modem can't be used to transmit data in both directions at the same time. It is required to be HALF because we are using a multipoint line. The default for the SDMR identifier is HALF.

```
RTYP SDLC
RTLN USIBMRA.RAOTPC0
SDLI RAOTNNB0,C5,RUSSELL
RTDN RAOTNNB0
SDLT MP
RTCU RUSSELL
SDDE YES
SDMR FULL
SDLF HALF
```

Figure 136. Tailored CONFIG.PCS File for the PS/2 SDLC Link

5.4.6 Check the STARTPCS.BAT File on the PS/2

This file is created when you install PC Support on the PS/2. The contents will depend on the functions you selected in Figure 132 on page 115. This file will contain the necessary commands to start PC Support. You have the option to leave this file as created or to customize it for your specific requirements. Details of this customization can be found in *PC Support Operations Reference Manual*. We recommend that you copy the contents of QIWSFLR to your fixed disk drive for performance reasons. Once that has been done you must change the STARTPCS.BAT file to run from the C drive.

The following screen displays the **STARTPCS.BAT** file.

C: \PCS\STARTRTR C: PCS\CONFIG.PCS ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Start SDLC Router
ECHO ON C: \PCS\FSPC ASSIGN I: QIWSFLR ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Assign drive I to AS/400 folder QIWSFLR
ECHO ON C: \PCS\PCSUPDT I: \ C: \PCS ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Run PC Support Update Function
ECHO ON C: \PCS\STARTMSG C: \PCS\CONFIG.PCS ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Start Message Function
ECHO ON C: \PCS\VPRT ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Start Virtual Print Function
ECHO ON C: \PCS\WSF /T ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Start Workstation Function selected with one standard session
ECHO ON C: \PCS\STARTWSF 1 ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	
ECHO ON C: \PCS\PCO C: \PCS\CONFIG.PCS ECHO OFF : EXIT ECHO ON	Start AS/400 PC Support Organizer

Figure 137. STARTPCS.BAT File

5.5 Relationship between PS/2 with PC Support and VTAM/NCP

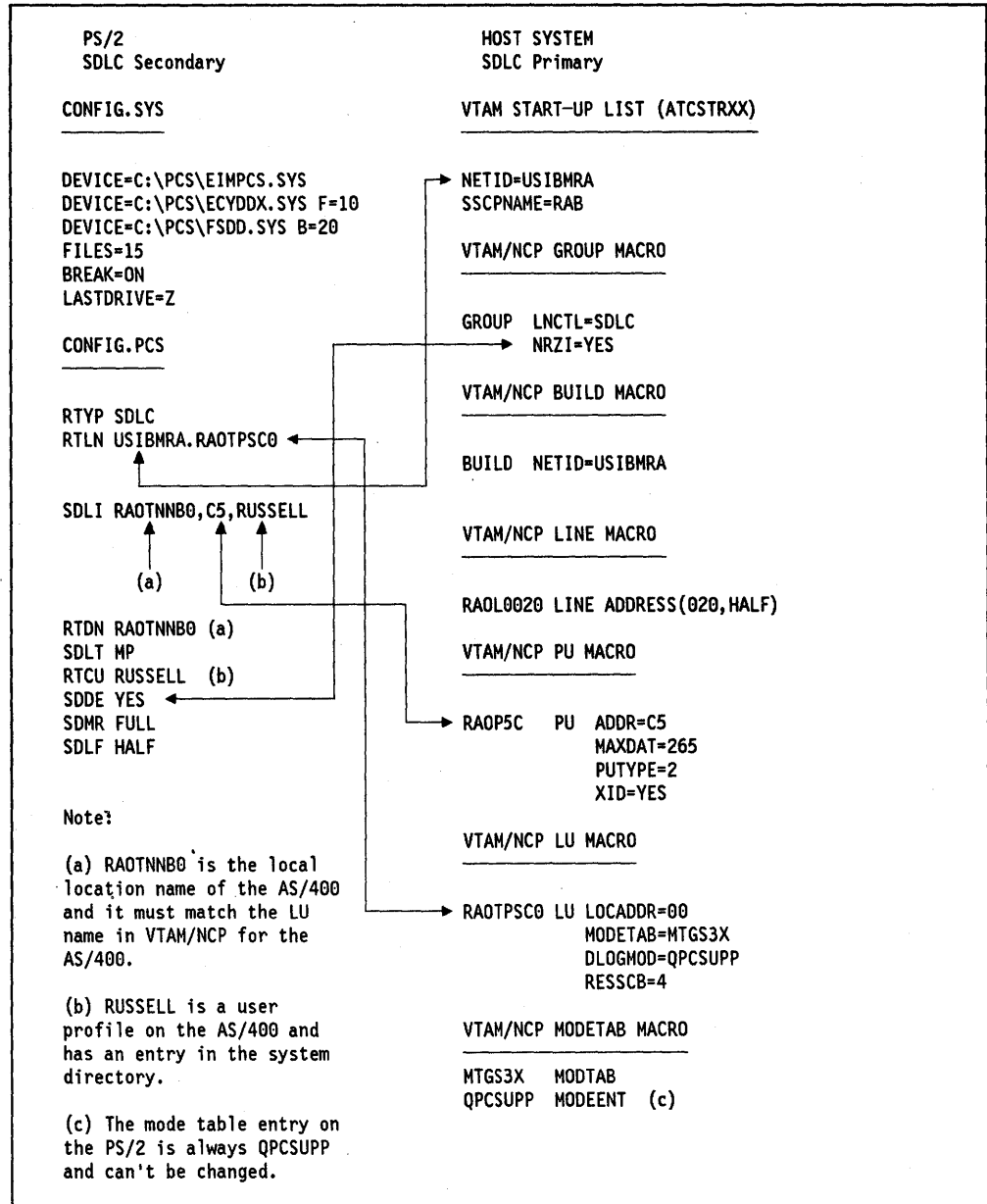


Figure 138. Defining a Leased Line between PS/2 and VTAM/NCP

5.6 Definitions on the Host for AS/400A and the PS/2

```

***** 01220008
*      BUILD MACRO SPECIFICATIONS * 01230008
***** 01240008
NCPBUILD BUILD VERSION=V4R3,      # NCP V4 REL3      X01250008
      ADDSESS=20,      ENOUGH BLOCKS DEFINED IN RESSCB X01260008
      AUXADDR=10,      ADDITIONAL PLU ADDRESSES FOR ILU X01260108
      ENBLTO=6.5,      IBM 386X REQUIRE 6.5 AS MINIMUM X01370008
      MAXSESS=16,      MAX LU-LU SESSIONS ANY LU CAN HAVE X01400008
      MAXSSCP=8,      MAXIMUM SESSIONS FOR LU      X01401008
      MODEL=3725,      !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!! X01420008
      NAMTAB=50,      # ENTRIES FOR SSCP, CP & NET NAMES X01430008
      NETID=USIBMRA,   NATIVE NETWORK      X01431008
      NEWNAME=RAONCP0, NAME OF THIS LOAD MODULE      V3X01440008
      SUBAREA=24,      SUBAREA ADDRESS = 24      X01470008
      COSTAB=ISTSDCOS, COS TABLE USED TO ACTIVATE ER/VR X01520008
      $ESSLIM=64      NUMBER OF SESSIONS PER NAF      01580008
      :              :
      :              :

```

Figure 139. NCP BUILD Macro for the AS/400 and PS/2

In Figure 139 we define the BUILD macro which indicates the NCP version, the type of communication controller to be used and the name of this load module. It also specifies the NCP subarea and the host subarea. USIBMRA is the network ID for the VTAM/NCP node.

```

***** 04750008
*      LINE MACRO SPECIFICATION      SDLC LINK 020      04760008
***** 04770008
RAOL0020 LINE ADDRESS=(020,HALF), TRANSMIT AND RECEIVE ADDRESSES X04780008
      NPACOLL=YES,      NPAX04790008
      ANS=CONTINUE,      DON'T BREAK CROSS DOMAIN SESSIONS X04800008
      OWNER=RAB,      (V) VTAM      X04810008
      ISTATUS=ACTIVE,      X04820008
      DUPLEX=(FULL),      REQUEST TO SEND ALWAYS UP      X04830008
      ETRATIO=30,      DEFAULT      X04840008
      LPDATS=LPDA1,      X04850008
      MAXPU=9,      ALLOW NO MORE THAN 9 PUS ON LINE      X04860008
      SERVLIM=2,      X04870008
      SRT=(,64),      X04880008
      SPEED=(4800)      LINE SPEED IS 4800 BPS      04890008
*      ATTACH=MODEM,      # NOT SUPPORTED V4R3      04900008
*      STATOPT=('AS/400',NOMONIT)      04910008
***** 04920008
*      * 04930008
*      SERVICE MACRO SPECIFICATION FOR SDLC (LINE 020) * 04940008
*      * 04950008
***** 04960008
      SERVICE ORDER=(RAOP07,      X04970008
      RAOP08,      X04980008
      RAOP1B,      AS/400 A      X04981012
      RAOP5C,      PS/2      X04982016
      RAOP09),      S/38      X04990008
      MAXLIST=9      05000008
***** 05010008

```

Figure 140. NCP LINE Macro for the AS/400 and PS/2

In Figure 140 the line RAOL0020 is specified as a non-switched multipoint line attached to the host RAB. Because this is a multipoint line, the service macro specification will present the order in which the attached PUs will be polled.

```

***** 07993008
* PU/LU MACRO RESERVED FOR THE AS/400 A (RALYAS4A) * 08000008
***** 08010008
*RAOP1B PU ADDR=C4, 3270 ADDRESS='C' (EBCDIC) X 08020008
* 08021009
* PU AND LU DEFINITION FOR AS/400A 08022009
* FOR SUPPORT DEPENDENT AND INDEPENDENT LUS 08023009
* GER ROOVERS EXT.2322 08024009
* 08025009
***** 08026010
RAOP1B PU ADDR=C4, 3270 ADDRESS='C' (EBCDIC) X08029209
MAXDATA=265, MAXIMUM AMOUNT OF DATA X08029309
MAXOUT=7, MAX SDLC FRAMES BEFORE RESPONSE X08029409
PACING=(7), PACING SET BY BIND IMAGE X08029512
ANS=CONTINUE, KEEPS CROSS-DOMAIN RUNNING X08029609
PASSLIM=7, X08029709
PUTYPE=2, X08029809
RETRIES=(,1,4), 4 RETRIES, 1 SECOND BETWEEN X08029909
DISCNT=(NO), (V) VTAM ONLY X08030009
ISTATUS=ACTIVE, (V) VTAM ONLY X08030109
VPACING=8, (V) VTAM ONLY X08030210
XID=YES 08030310
STATOPT='AS/400 T2.1' 08030410
***** 08030509
* DEFINITIONS FOR AS/400A * 08030609
* RAOTNNB0 TO B3 INDEPENDENT LUS 08030709
***** 08031609
RAOTNNB0 LU RESSCB=4, INDEPENDENT LU X08031710
LOCADDR=0, X08031813
MODETAB=MTGS3X, X08031910
DLOGMOD=MODS361, X08032010
ISTATUS=ACTIVE 08032110
* STATOPT='INDEPENDENT LU' 08032210
RAOTNNB1 LU RESSCB=4, INDEPENDENT LU X08032310
LOCADDR=0, X08032413
MODETAB=MTGS3X, X08032510
DLOGMOD=QPCSUPP, X08032610
ISTATUS=ACTIVE 08032710
* STATOPT='INDEPENDENT LU' 08032810
RAOTNNB2 LU RESSCB=4, INDEPENDENT LU X08032910
LOCADDR=0, X08033013
MODETAB=MTGS3X, X08033110
DLOGMOD=QPCSUPP, X08033210
ISTATUS=ACTIVE 08033310
* STATOPT='INDEPENDENT LU' 08033410
RAOTNNB3 LU RESSCB=4, INDEPENDENT LU X08033510
LOCADDR=0, X08033613
MODETAB=MTGS3X, X08033710
DLOGMOD=MODS361, X08033810
ISTATUS=ACTIVE 08033910
* STATOPT='INDEPENDENT LU' 08034010

```

Figure 141. NCP PU and LU Macro for the AS/400

In Figure 141 the RAOP1B has a PU address of C4 defined. This value has to match the station address defined in the AS/400 controller description for this host.

PUTYPE=2 and XID=YES must be specified so that the host appears as T2.1 node to the AS/400.

The LU used for scenario 2 is RAOTNNB0. Because it is an independent LU, we have to specify LOCADDR=0. RESSCB=4 means that this specific LU has reserved four session control blocks for itself.

```

***** 08043113
* PU/LU MACRO RESERVED FOR THE PS/2 * 08043213
***** 08043313
* PU AND LU DEFINITION FOR PS/2 PC SUPPORT 05/16/89 08043613
* FOR SUPPORT DEPENDENT AND INDEPENDENT LUS 08043713
* GER ROOVERS EXT.2322 08043813
* 08043913
***** 08044013
RAOP5C PU ADDR=C5, 3270 ADDRESS='C' (EBCDIC) X08044115
MAXDATA=265, MAXIMUM AMOUNT OF DATA X08044213
MAXOUT=7, MAX SDLC FRAMES BEFORE RESPONSE X08044313
PACING=(7), PACING SET BY BIND IMAGE X08044413
ANS=CONTINUE, KEEPS CROSS-DOMAIN RUNNING X08044513
PASSIM=7, X08044613
PUTYPE=2, X08044713
RETRIES=(,1,4), 4 RETRIES, 1 SECOND BETWEEN X08044813
DISCNT=(NO), (V) VTAM ONLY X08044913
ISTATUS=ACTIVE, (V) VTAM ONLY X08045013
VPACING=8, (V) VTAM ONLY X08045113
XID=YES 08045213
STATOPT='AS/400 T2.1' 08045313
***** 08045413
* DEFINITIONS FOR PS/2 WITH AS/400 PC SUPPORT * 08045513
* RAOTNNB1 INDEPENDENT LU 08045613
* 08046413
***** 08046513
RAOTPSC0 LU RESSCB=4, INDEPENDENT LU X08046614
LOCADDR=0, X08046713
MODETAB=MTGS3X, X08046813
DLOGMOD=QPCSUPP, X08046913
ISTATUS=ACTIVE 08047013
* STATOPT='INDEPENDENT LU' 08047113
***** 08047208

```

Figure 142. NCP PU and LU Macro for the PS/2

In Figure 142 RAOP5C has a PU address of C5 defined. This value must match the station address specified in the SDLI identifier in CONFIG.PCS file of the attached PS/2.

PUTYPE=2 and XID=YES must be specified so that the host appears as a T2.1 node to the PS/2.

The LU used for scenario 2 is RAOTPSC0. Because it is an independent LU, we have to specify LOCADDR=0. RESSCB=4 means that this specific LU has four reserved session control blocks for itself.

5.7 Activate Communications on the AS/400A

This section will describe how to activate AS/400A to the S/370 subarea network. The PS/2 can request a session when the AS/400 line and controller description have been activated.

To activate communications on the AS/400, the line, controller and devices have to be varied on. The following screens will guide you through this exercise. You can also go directly to the Work with Configuration Status screen by using the WRKCFGSTS command.

MAIN

AS/400 Main Screen

System: RALYAS4A

Select one of the following:

1. User tasks
2. Office tasks
3. General system tasks
4. Files, libraries, and folders
5. Programming
6. Communications
7. Define or change the system
8. Problem handling
9. Display a menu

90. Sign off

Selection or command
==> 6

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
F23=Set initial menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 143. AS/400 Main Screen

Select option 6 in Figure 143 to go to the Communications screen.

CMN	Communications	System: RALYAS4A
-----	----------------	------------------

Select one of the following:

1. Communication status
2. Messages
3. Remote jobs
4. Configure communications
5. Network management
6. Network configuration
7. Verify communications
8. Send or receive files
9. Jobs

70. Related commands

Selection or command
 ===> 1

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
 F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 144. Communications Screen

Select option 1 in Figure 144 to choose the Communications Status screen.

CMNSTS	Communications Status	System: RALYAS4A
--------	-----------------------	------------------

Select one of the following:

1. Work with line status
2. Work with controller status
3. Work with device status

70. Related commands

Selection or command
 ===> 1

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
 F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 145. Communications Status Screen

Select option 1 in Figure 145 to work with line status.

WRKCFGSTS	Work with Configuration Status
-----------	--------------------------------

Type choices, press Enter.

Type	> *LIN	*LIN, *CTL, *DEV
Configuration description . . .	> 124020	Name, generic*, *ALL, *CMN...

F3=Exit F4=List F5=Refresh F11=Keywords F12=Previous
 F13=How to use this display

Figure 146. Work with Communications Status Screen

Type the line description name in Figure 146 to work with line status.

```

Work with Configuration Status
System: RALYAS4A
Position to . . . . . Starting character(s)
Type options, press Enter.
1=Vary on 2=Vary off 3=Hold device 4=End recovery 5=Work with job
6=Release device 7=Resume recovery

Opt Lin/Ctl/Dev/Mod Status -----Job-----
1 L24020 VARIED OFF
P24020D VARIED OFF
T24020D1 VARIED OFF
T24020D2 VARIED OFF
T24020D3 VARIED OFF
T24020D4 VARIED OFF
T24020D5 VARIED OFF
T24020D6 VARIED OFF
T24020D7 VARIED OFF

Parameters for options 1, 2, 3 or command
===>
F3=Exit F4=Prompt F5=Refresh F9=Retrieve F12=Previous
F14=Work with lines
More...
(C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 147. Work with Communications Status Screen

Select option 1 in Figure 147 to vary on the line, the attached controller and devices.

```

Work with Configuration Status
System: RALYAS4A
Position to . . . . . Starting character(s)
Type options, press Enter.
1=Vary on 2=Vary off 3=Hold device 4=End recovery 5=Work with job
6=Release device 7=Resume recovery

Opt Lin/Ctl/Dev/Mod Status -----Job-----
L24020 ACTIVE
P24020D ACTIVE
T24020D1 VARIED ON
T24020D2 VARIED ON
T24020D3 VARIED ON
T24020D4 VARIED ON
T24020D5 VARIED ON
T24020D6 ACTIVE
T24020D7 ACTIVE

Parameters for options 1, 2, 3 or command
===>
F3=Exit F4=Prompt F5=Refresh F9=Retrieve F12=Previous
F14=Work with lines
More...
(C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 148. Work with Communications Status Screen

Select F5 to refresh the screen in Figure 147. Because this is a leased line, the line and controller should present the status "ACTIVE" and the devices should present the status "ACTIVE" when they use LU 6.2 support; otherwise they present the status "VARIED ON".

5.8 Activating Communications on the S/370 Host for the PS/2 and AS/400A

```
NCCF      N E T V I E W      RABAN WTCR21    05/31/89 16:38:30
* RABAN   V NET,ACT,ID=RAOL0020  <-----
RABAN     IST097I VARY    ACCEPTED
RABAN     IST093I RAOL0020 ACTIVE
C RABAN   >AOPNLIST RAOL0020 NONE
RABAN     IST097I DISPLAY  ACCEPTED
```

Figure 149. Activate Line for AS/400A and PS/2

AS/400A and PS/2 are T2.1 nodes connected to the same line of the S/370 host. Therefore to vary on the line we should issue the VTAM command "V NET,ACT,ID=RAOL0020".

```
NCCF      N E T V I E W      RABAN WTCR21    05/31/89 16:39:12
* RABAN   V NET,ACT,ID=RAOP1B,SCOPE=ALL <-----
RABAN     IST097I VARY    ACCEPTED
RABAN     IST093I RAOP1B  ACTIVE
C RABAN   >AOPNLIST RAOP1B NONE
RABAN     IST097I DISPLAY  ACCEPTED
```

Figure 150. Activate PU for the AS/400 A

To vary on the AS/400A PU, enter the VTAM command "V NET,ACT,ID=RAOP1B,SCOPE=ALL".

```
NCCF      N E T V I E W      RABAN WTCR21    05/31/89 16:39:38
* RABAN   V NET,ACT,ID=RAOP5C,SCOPE=ALL <-----
RABAN     IST097I VARY    ACCEPTED
RABAN     IST093I RAOP5C  ACTIVE
C RABAN   >AOPNLIST RAOP5C NONE
RABAN     IST097I DISPLAY  ACCEPTED
```

Figure 151. Activate PU for the PS/2

To vary on the PS/2 PU, enter the VTAM command "V NET,ACT,ID=RAOP5C,SCOPE=ALL".

```

NCCF      N E T V I E W      RABAN WTCR21    05/31/89 16:40:02
C RABAN   DISPLAY NET, ID=RAOP1B, SCOPE=ALL
RABAN     IST097I DISPLAY ACCEPTED
RABAN
IST075I   NAME = RAOP1B      , TYPE = PU T2.1 <-----
IST486I   STATUS= ACTIV      , DESIRED STATE= ACTIV
IST081I   LINE NAME = RAOL0020, LINE GROUP = RAOGSFLO, MAJNOD = RAONCP0
IST654I   I/O TRACE = OFF, BUFFER TRACE = OFF
IST355I   LOGICAL UNITS:
IST080I   RAOTNNB0 ACT/S      RAOTNNB1 ACTIV      RAOTNNB2 ACTIV
IST080I   RAOTNNB3 ACTIV      RAOTNNB4 ACTIV      RAOTNNB5 ACTIV
IST080I   RAOT1B01 ACTIV      RAOT1B02 ACTIV      RAOT1B03 ACTIV
IST080I   RAOT1B04 ACTIV      RAOT1B05 ACTIV      RAOT1B06 ACTIV
IST080I   RAOT1B07 ACTIV      RAOT1B08 ACTIV      RAOT1B09 ACTIV
IST080I   RAOT1B0A ACTIV      RAOT1B0B NEVAC      RAOT1B0C NEVAC
IST080I   RAOT1B0D NEVAC      RAOT1B0E ACTIV      RAOT1B0F ACTIV
IST080I   RAOT1B0G ACTIV      RAOT1B0H ACTIV      RAOT1B0I ACTIV
IST080I   RAOT1B0J ACTIV
IST314I   END

```

Figure 152. Display Status of the PU for the AS/400A

Figure 152 displays the status of the PU for AS/400A. Notice that the PU is seen as a T2.1 after activation and LU RAOTNNB0 is active and in session.

```

NCCF      N E T V I E W      RABAN WTCR21    05/31/89 16:40:23
C RABAN   DISPLAY NET, ID=RAOP5C, SCOPE=ALL
RABAN     IST097I DISPLAY ACCEPTED
RABAN
IST075I   NAME = RAOP5C      , TYPE = PU T2.1 <-----
IST486I   STATUS= ACTIV      , DESIRED STATE= ACTIV
IST081I   LINE NAME = RAOL0020, LINE GROUP = RAOGSFLO, MAJNOD = RAONCP0
IST654I   I/O TRACE = OFF, BUFFER TRACE = OFF
IST355I   LOGICAL UNITS:
IST080I   RAOTPSC0 ACT/S
IST314I   END

```

Figure 153. Display Status of the PU for the PS/2

Figure 153 displays the status of the PU for the PS/2. Notice that the PU is seen as a T2.1 after activation and LU RAOTPSC0 is active and in session.

```

NCCF      N E T V I E W      RABAN WTCR21    05/31/89 16:40:45
C RABAN   DISPLAY NET, ID=RAOTNNB0, SCOPE=ALL
RABAN     IST097I DISPLAY ACCEPTED
RABAN
IST075I   NAME = RAOTNNB0    , TYPE = LOGICAL UNIT
IST486I   STATUS= ACT/S      , DESIRED STATE= ACTIV
IST861I   MODETAB=MTGS3X    USSTAB=***NA*** LOGTAB=***NA***
IST934I   DLOGMOD=MODS361
IST597I   CAPABILITY=PLU ENABLED , SLU ENABLED , SESSION LIMIT NONE
IST081I   LINE NAME = RAOL0020, LINE GROUP = RAOGSFLO, MAJNOD = RAONCP0
IST135I   PHYSICAL UNIT = RAOP1B
IST082I   DEVTYPE = INDEPENDENT LU      <-----
IST654I   I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I   ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000000
IST206I   SESSIONS:
IST634I   NAME      STATUS      SID      SEND RECV VR TP NETID
IST635I   RAOTPSC0 ACTIV-P      CF0384B97C5057BE      0 0 US1BMRA
IST314I   END

```

Figure 154. Display Status of the LU for the AS/400

Figure 154 displays the status of the LU for AS/400A. Notice the new device type of "independent LU". VTAM recognizes that it is an independent LU because of the LOCADDR=00 in the NCP major node.

If you look at IST635I you will see that this AS/400 LU (RAOTNNB0) has an active session with the PS/2 LU (RAOTPSC0) and in this case the PS/2 is the primary LU.

```

NCCF          N E T V I E W          RABAN WTCR21    05/31/89 16:41:05
RABAN  DISPLAY NET,ID=RAOTPSC0,SCOPE=ALL
RABAN  IST097I  DISPLAY ACCEPTED
RABAN
IST075I NAME = RAOTPSC0          , TYPE = LOGICAL UNIT
IST486I STATUS= ACT/S          , DESIRED STATE= ACTIV
IST075I NAME = RAOTPSC0          , TYPE = LOGICAL UNIT
IST861I MODETAB=MTGS3X  USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=MODS361
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST081I LINE NAME = RAOL0020, LINE GROUP = RAOGSFLO, MAJNOD = RAONCP0
IST135I PHYSICAL UNIT = RAOP5C
IST082I DEVTPE = INDEPENDENT LU          <-----
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST634I NAME      STATUS      SID      SEND RECV VR TP NETID
IST635I RAOTNNB0  ACTIV-S     CF0384B97C5057BE      0 0 USIBMRA
IST314I END

```

Figure 155. Display Status of the LU for the PS/2

Figure 155 displays the status of the LU for the PS/2. Notice the new device type of "independent LU". VTAM recognizes that it is an independent LU because of the LOCADDR=00 in the NCP major node.

If you look at IST635I you will see that this PS/2 LU (RAOTPSC0) has an active session with the AS/400 LU (RAOTNNB0) and in this case the AS/400 LU is the secondary LU.

5.9 Running AS/400 PC Support

Once the communications on AS/400A and S/370 host have been activated you are ready to use PC Support to establish a session between the PS/2 and the AS/400 behind the S/370 subarea network.

All that needs to be done now is to run the STARTPCS command from the C drive. Refer to Figure 137 on page 118 for a display of the STARTPCS.BAT file. This command will initiate the following PC Support functions:

- **STARTRTR** will start the router between the PS/2 and AS/400A using the identifiers defined in the CONFIG.PCS file.
- **FSPC ASSIGN** will assign a folder on AS/400A to a virtual drive on the PS/2. In this case it is QIWSFLR folder being assigned the drive I. This will also allow the PS/2 user to access information stored in folders on the AS/400A.
- **PCUPDT** will automatically update the AS/400 PC Support programs on the PS/2. This ensures that the most appropriate level of AS/400 PC Support programs are installed on the PS/2.
- **STARTMSG** will allow the PS/2 users to send messages to and receive messages from other PS/2's with AS/400 PC Support or AS/400 workstations
- **VPRT** will allow the user to use printers attached to AS/400A system as though they were directly attached to the PS/2.
- **WSF \T** will start the work station function program on the PS/2. If a profile can't be found it will default to a single display screen and a 5250 keyboard style. You have the ability to define up to five sessions which can be any combination of display, graphic or printer sessions.
- **STARTWSF 1** will start the workstation function for session 1.
- **PCO** will allow both PS/2 functions and AS/400 functions to run from a single AS/400 menu. From the screen you also have options to transfer data from AS/400A to the PS/2 or vice versa.

For more information on PC Support see *AS/400 PC Support*.

5.10 Traces

The following traces were taken on the AS/400A using the trace facility.

COMMUNICATIONS TRACE Title: AS/400 TO PS/2 V HST 06/28/89 07:08:58 Page: 1									
Trace Description : AS/400 TO PS/2 V HST									
Line name : L24020									
Line protocol : SDLC									
Start Date/Time : 06/28/89 07:01:42									
End Date/Time : 06/28/89 07:08:54									
Bytes collected : 68683									
Buffer size : 3 1=128K, 2=256K, 3=2048K									
Data direction : 3 1=Sent, 2=Received, 3=Both									
Stop on buffer full : N Y=Yes, N=No									
Format SNA data only : N Y=Yes, N=No									
Format RR, RNR commands : N Y=Yes, N=No									
Controller Name : *ALL *ALL, name									
COMMUNICATIONS TRACE Title: AS/400 TO PS/2 V HST 06/28/89 07:08:58 Page: 2									
Record Number Number of record in trace buffer (decimal)									
S/R S=Sent R=Received M=Modem Change									
Data Length Amount of data in record (decimal)									
Record Timer Time stamp (100 millisecond resolution, hexadecimal)									
Record Status Status of record									
Controller name Name of controller associated with record									
Command Command/Response information									
Number sent Count of records sent									
Number received Count of records received									
Poll/Final ON=Poll for Commands, Final for Responses									
Commands/Responses:									
I Information									
RR Receive Ready									
RNR Receive Not Ready									
REJ Reject									
UI Unnumbered Information									
SNRM Set Normal Response Mode									
DISC Disconnect/Request Disconnect									
TEST Test									
SIM Set Initialization Mode									
UP Unnumbered Poll									
FRMR Frame Reject									
CFGR Configure									
DM Disconnected Mode									
XID Exchange ID									
BCN Beacon									
SNRME Set Normal Response Mode Extended									
UA Unnumbered Acknowledgment									
***** Invalid Command/Response									
COMMUNICATIONS TRACE Title: AS/400 TO PS/2 V HST 06/28/89 07:08:58 Page: 3									
Record	Data	Record	Record	Data	Controller	Number	Number	Poll/	
Number	S/R	Length	Status	Timer	Type	Name/Number	Command	Sent	Received
15	R	0	00000000	6EFE	/C4	XID			ON
16	S	84	00000000	6EFE	/C4	XID			ON
			Data . . .						
									.../&.....{.....
									.4USIBMRA.RALYAS4A..7AAAAAACV.
									*.1.....9406850100015078
21	R	119	00000000	6F45	/C4	XID			ON
			Data . . .						*.....D!.....*
									.4USIBMRA.RAB..1RAONCP0..7RAOP
									1B.....372500000001825....
									..566885401300..040300..I....
22	S	84	00000000	6F45	/C4	XID			ON
			Data . . .						*.../&.....{.....*
									.4USIBMRA.RALYAS4A..7AAAAAACV.
									*.1.....9406850100015078
27	R	0	00000000	6F89	/C4	SNRM			ON
28	S	0	00000000	6F89	/C4	UA			ON

Figure 156. AS/400 Trace for Scenario 2

COMMUNICATIONS TRACE		Title: AS/400 TO PS/2 V HST	06/28/89 07:09:12	Page: 1
Trace Description		: AS/400 TO PS/2 V HST		
Line name		: L24020		
Line protocol		: SDLC		
Start Date/Time		: 06/28/89 07:01:42		
End Date/Time		: 06/28/89 07:08:54		
Bytes collected		: 68683		
Buffer size		: 3 1=128K, 2=256K, 3=2048K		
Data direction		: 3 1=Sent, 2=Received, 3=Both		
Stop on buffer full		: N Y=Yes, N=No		
Format SNA data only		: Y Y=Yes, N=No		
Format RR, RNR commands		: N Y=Yes, N=No		
Controller Name		: *ALL *ALL, name		
COMMUNICATIONS TRACE		Title: AS/400 TO PS/2 V HST	06/28/89 07:09:12	Page: 2
Record Number		Number of record in trace buffer (decimal)		
S/R		S=Sent R=Received M=Modem Change		
Controller name		Name of Controller associated with record		
SNA Data		TH, RH and RU for record		
TH		Transmission Header		
RH		Request/Response Header		
RU		Request/Response Unit		
TH Parameter Descriptions:				
FID		Format Identification		
MPF		Mapping Field (segment of Basic Information Unit (BIU) - ONLY, FIRST, MIDDLE, LAST)		
OAF		Origination Address Field		
DAF		Destination Address Field		
SNF		Sequence Number Field		
DCF		Data Count Field		
LA		Local Address		
ODAI		OAF-DAF Assignor Indicator		
EFI		Expedited Flow Indicator		
LU		Logical Unit		
SSCP		System Services Control Point		
PU		Physical Unit		
RH Parameter Descriptions:				
REQ		Request		
RSP		Response		
RH Category Descriptions:				
NC		Network Control		
SC		Session Control		
DFC		Data Flow Control		
NC		Network Control		
FMD		Function Management Data		
FMH		Function Management Header		
RH Indicators:				
FI		Format Indicator		
SDI		Sense Data Included Indicator		
BCI		Begin Chain Indicator		
ECI		End Chain Indicator		
DR1		Definite Response 1 Indicator		
DR2		Definite Response 2 Indicator		
ERI		Exception Response Indicator		
RTI		Response Type Indicator		
QRI		Queued Response Indicator		
EBI		End Bracket Indicator		
CDI		Change Direction Indicator		
PI		Pacing Indicator		
BBI		Begin Bracket Indicator		
CSI		Code Selection Indicator		
EDI		Enciphered Data Indicator		
PDI		Padded Data Indicator		
CEBI		Conditional End Bracket Indicator		
RLWI		Request Larger Window Indicator		

Figure 157. AS/400 Trace for Scenario 2 (continued)

COMMUNICATIONS TRACE				Title: AS/400 TO PS/2 V HST	06/28/89 07:09:12	Page: 3
Record Number	S/R	Controller Name	Data Type	SNA Data: TH, RH, RU		
33	R	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=00, SNF'=03ED, EFI		
				RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
			RU Command	ACTPU		
			RU Data	110201050000000000	*.....	*
39	S	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=00, SNF'=03ED, EFI		
				RH : ('EB8000'X) RSP SC, FI, DR1		
			RU Command	ACTPU		
			RU Data	11114040404040404000000701000000000000	*..	*
43	R	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=00, SNF'=03EE, EFI		
				RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
			RU Command	ACTLU		
			RU Data	0002010E11F3E4E2C9C2D4D9C14B09C1D6E3F1C2F0F1	*.....3USIBMRA.RAOT1801	*
51	S	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=01, SNF'=03EE, EFI		
				RH : ('EB8000'X) RSP SC, FI, DR1		
			RU Command	ACTLU		
			RU Data	00010100850000000C0E010001000000404040404040	*....E.....	*
359	R	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0000, EFI		
				RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
			RU Command	BIND		
			RU Data	31001307B08051B3008785858700060200000000000001023000010E4E2	*.....GEEG.....US*	
				C9C2D4D9C14B09C1D6E3D7E2C3F01000902E2D5C1E2E5C3D4C71104E4E2	*IBMRA.RAOTPSC0....SNASVCMG...US*	
				C9C2D4D9C14B09C1D6E3D7E2C3F00010E4E2C9C2D4D9C14B09C1D6E3D5D5	*IBMRA.RAOTPSC0...USIBMRA.RAOTNN*	
				C2F02C0A0108404040404040406014CF0384897C294E630BE4E2C9C2D4	*B0.... -...D.@+...USIBM*	
				D9C14B09C1C2	*RA.RAB	*
369	S	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=0000, EFI		
				RH : ('EB8000'X) RSP SC, FI, DR1		
			RU Command	BIND		
			RU Data	31001307B08051B30080858580006020000000000001023000001D00	*.....EE.....	*
				0902E2D5C1E2E5C3D4C71105E4E2C9C2D4D9C14B09C1D6E3D5D5C2F00000	*..SNASVCMG..USIBMRA.RAOTNNB0..*	
				2C0A0108404040404040406014CF0384897C294E630BE4E2C9C2D4D9C1	*.... -...D.@+...USIBMRA*	
				4B09C1C2	*.RAB	*
373	R	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0001		
				RH : ('0A9100'X) REQ FMD, FI, BCI, DR1, ERI, PI		
			RU Command			
			RU Data	180502FF0003D000000206F1090802D9E4E2E2C5D3D30000	*.....}....1...RUSSELL..	*
379	S	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=0000, EFI		
				RH : ('830100'X) RSP FMD, PI		
			RU Data	000007	*...	*
381	R	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0002		
				RH : ('019520'X) REQ FMD, ECI, DR1, ERI, RLWI, PI, CBI		
			RU Data	001812100200000000020002000000007D8D7C3E2E4D7D7	*.....QPCSUPP	*
385	S	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=0000, EFI		
				RH : ('830100'X) RSP FMD, PI		
			RU Data	00000E	*...	*
386	S	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=0001		
				RH : ('039501'X) REQ FMD, BCI, ECI, DR1, ERI, RLWI, PI, CBI		
			RU Data	001812100A00000000020002000000007D8D7C3E2E4D7D7	*.....QPCSUPP	*
388	R	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0000, EFI		
				RH : ('830100'X) RSP FMD, PI		
			RU Data	000008	*...	*
389	R	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0000, EFI		
				RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
			RU Command	UNBIND		
			RU Data	320F000000000014CF0384897C294E630BE4E2C9C2D4D9C14B09C1C2	*.....-...D.@+...USIBMRA.RAB	*
393	S	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=0000, EFI		
				RH : ('EB8000'X) RSP SC, FI, DR1		
			RU Command	UNBIND		
			RU Data	32	*	*
397	R	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0000, EFI		
				RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
			RU Command	BIND		
			RU Data	31001307B08051B3008786868700060200000000000001023000010E4E2	*.....GFFG.....US*	
				C9C2D4D9C14B09C1D6E3D7E2C3F01C000802D8D7C3E2E4D7D71104E4E2C9	*IBMRA.RAOTPSC0....QPCSUPP...USI*	
				C2D4D9C14B09C1D6E3D7E2C3F00010E4E2C9C2D4D9C14B09C1D6E3D5D5C2	*BMRA.RAOTPSC0...USIBMRA.RAOTNNB*	
				F02C0A0108404040404040406014CF0384897C294E640BE4E2C9C2D4D9	*0.... -...D.@+...USIBM*	
				C14B09C1C2	*A.RAB	*

Figure 158. AS/400 Trace for Scenario 2 (continued)

Figure 159. AS/400 Trace for Scenario 2 (continued)

5.11 Section 2: Definitions on AS/400B (RALYAS4B)

When you are going to connect AS/400B as an APPN node to an S/370 subarea to support independent LUs you are required to perform the following steps:

- Check the network attributes
- Create a line description from the AS/400 to VTAM/NCP
- Create a host controller description for the S/370 host
- Configure APPN remote and local location lists
- Create a mode entry.

5.11.1 Network Attributes

The network attributes contain the AS/400's local system values for APPN. You can display these attributes by using the DSPNETA command or by going to menu "NETWORK".

MAIN

AS/400 Main Menu

System: RALYAS4B

Select one of the following:

1. User tasks
2. Office tasks
3. General system tasks
4. Files, libraries, and folders
5. Programming
6. Communications
7. Define or change the system
8. Problem handling
9. Display a menu

90. Sign off

Selection or command
====> dspneta

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
F23=Set initial menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 160. AS/400 Main Menu Screen

Type DSPNETA to display the network attributes.

Display Network Attributes		System: RALYAS4B
Current system name	:	RALYAS4B
Pending system name	:	
Local network ID	:	USIBMRA
Local control point name	:	RALYAS4B
Default local location	:	RALYAS4B
Default mode	:	MODS361
Maximum number of conversations for a remote location	:	64
APPN node type	:	*NETNODE
Maximum number of intermediate sessions	:	200
Route addition resistance	:	128
Server network ID/control point name	:	
		More...
Press Enter to continue.		
F3=Exit F12=Previous		

Figure 161. Display Network Attributes Screen

Notice we have defined the local control point name, local network ID, default location name and APPN node type. You can change these parameters by the CHGNETA command or by taking option 2 from the Network menu.

Display Network Attributes		System: RALYAS4B
Alert status	:	*UNATTEND
Alert primary focal point	:	*NO
Alert default focal point	:	*NO
Alert logging status	:	*ALL
Alert controller description	:	L31CTLTR
Message queue	:	QSYSOPR
Library	:	QSYS
Output queue	:	QPRINT
Library	:	QGPL
Job action	:	*FILE
Maximum hop count	:	16
DDM request access	:	*OBJAUT
PC Support request access	:	*OBJAUT
Press Enter to continue.		
F3=Exit F12=Previous		

Figure 162. Display Network Attributes Screen (continued)

L31CTLTR is the alert controller description which can be used to send up alerts coming from this APPN network to NetView. For more information on alerts see *Management of AS/400 in SNA Subarea Network using Network Products*.

5.11.2 Create Line Description

The first step in defining AS/400B to a S/370 subarea network is to create the line description. You can do this by either following the screens documented or by using the CL command CRTLINTRN.

```
MAIN                                AS/400 Main Menu                                System:  RALYAS4B

Select one of the following:

    1. User tasks
    2. Office tasks
    3. General system tasks
    4. Files, libraries, and folders
    5. Programming
    6. Communications
    7. Define or change the system
    8. Problem handling
    9. Display a menu

    90. Sign off

Selection or command
==> 6

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F23=Set initial menu

(C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 163. AS/400 Main Menu Screen

Select option 6 in Figure 163 to go to the Communications screen.

```
CMN                                Communications                                System:  RALYAS4B

Select one of the following:

    1. Communication status
    2. Messages
    3. Remote jobs
    4. Configure communications
    5. Network management
    6. Network configuration
    7. Verify communications
    8. Send or receive files
    9. Jobs

    70. Related commands

Selection or command
====> 4

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 164. Communications Screen

Select option 4 in Figure 164 to configure communications.

```

CFGCMN          Configure Communications and Remote Hardware
                                                    System:  RALYAS4B

Select one of the following:

    1. Lines
    2. Communications controllers
    3. Work station controllers
    4. Communications devices
    5. Printers
    6. Display stations
    7. Modes
    8. Classes-of-service
    9. Configure address and location lists

Selection or command
====> 1

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu
                                                    (C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 165. Configure Communications and Remote Hardware Screen

Select option 1 in Figure 165 to define your line description.

```

                                Work with Line Descriptions
                                                    System:  RALYAS4B

Position to . . . . . Starting character(s)

Type options, press Enter.
    2=Change  3=Copy  4=Delete  5=Display  6=Print

Opt  Line      Type      Text

Parameters for option 2 or command
====>
F3=Exit  F4=Prompt  F5=Refresh  F6=Create  F9=Retrieve  F12=Previous
F14=Work with status
                                                    More...
                                                    (C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 166. Work with Line Descriptions Screen

Select option F6 to create the line description in Figure 166.

```

                                Create Line Description

Type choices, press Enter.

New line description  l3l1r      Name

Line type . . . . . *trlan      *ASYN=Asynchronous communications
                                   *BSC=Binary synchronous communications
                                   *SDLC=Synchronous data link control
                                   *TDL=Token-Ring local area network
                                   *X25=X.25 communications network

F3=Exit  F12=Previous

```

Figure 167. Create Line Description Screen

The line type we are using is *TRLAN.

CRTLINTRN		Create Line Desc (Token-Ring)	
Type choices, press Enter.			
Line description	> L31TR	Name	
Resource name	lin031	Name	
Online at IPL	*YES	*YES, *NO	
Vary on wait	*NOWAIT	*NOWAIT, 15-180 (1 second)	
Maximum controllers	40	1-256	
Maximum frame size	1994	265, 521, 1033, 1994	
Local adapter address	400010020002	400000000000-7FFFFFFFFF...	
Exchange identifier	*SYSGEN	05600000-056FFFFF, *SYSGEN	
SSAP list:			
Source Service Access Point .	*SYSGEN	*SYSGEN, 04, 08, 0C, 10...	
	+ for more values		
Text 'description' Token-Ring Line Description to SA 24			
F3=Exit	F4=List	F5=Refresh	F10=Additional parameters F11=Keywords
F12=Previous	F13=How to use this display		

Figure 168. Create Line Description (TRLAN) Screen

The resource name is the name of the physical communications port on the AS/400. It can be found by executing the command WRKHDWPRD and taking the option to work with your rack configuration.

The local token-ring adapter address of the AS/400B is 400010020002.

The exchange identifier parameter is not needed because we use the CPNAME for remote system identification.

Press Enter to create your line description to the host. It will return you to the Work with Line Descriptions screen.

5.11.3 Create Host Controller Description

Now you must create a host controller description which describes the S/370 host you are connecting to. Again, you can follow the screens or enter the CL command CRTCTLHOST.

```
CFGCMN          Configure Communications and Remote Hardware
                                     System:  RALYAS4B
Select one of the following:

  1. Lines
  2. Communications controllers
  3. Work station controllers
  4. Communications devices
  5. Printers
  6. Display stations
  7. Modes
  8. Classes-of-service
  9. Configure address and location lists

Selection or command
===> 2

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 169. Configure Communications and Remote Hardware Screen

Select option 2 in Figure 169 to configure your host controller.

```
                                Work with Controller Descriptions
                                     System:  RALYAS4B
Position to . . . . . Starting character(s)

Type options, press Enter.
  2=Change  3=Copy  4=Delete  5=Display  6=Print

Opt  Controller  Type  Text
    QESCTL      *HOST
    QTICTL      *HOST

Parameters for option 2 or command
===>
F3=Exit  F4=Prompt  F5=Refresh  F6=Create  F9=Retrieve  F12=Previous
F14=Work with status

(C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 170. Work with Controller Descriptions Screen

Select F6 to create your host controller description.

Create Controller Description		
Type choices, press Enter.		
New controller description	L31CTLTR	Name
Controller type/class	*host	*APPC=Advanced program-to-program communications *ASYN=Asynchronous communications *BSC=Binary synchronous communications *FNC=Finance *HOST=SNA host
F3=Exit F12=Previous		

Figure 171. Create Controller Description Screen

We will be defining *HOST as our controller type as we will be communicating to a SNA host and will have the support of dependent and independent LUs.

You can also define the controller type as *APPC to describe the attributes of the host but then it will only support independent LUs.

CRTCTLHOST Create Ctl Desc (SNA Host)		
Type choices, press Enter.		
Controller description	> L31CTLTR	Name
Link type	> *TRLAN	*SDLC, *TRLAN, *X25
Online at IPL	*YES	*YES, *NO
APPN capable	*YES	*YES, *NO
Switched line list	> L31TR	Name
+ for more values		
Maximum frame size	*LINKTYPE	*LINKTYPE, 265, 521, 1033...
Remote network identifier . . .	> USIBMRA	Name, *NETATR, *NONE
Remote control point name . . .	> RAB	Name
SSCP identifier	> 05000000000B	050000000000-05FFFFFFFF
Initial connection	*DIAL	*DIAL, *ANS
TRLAN remote adapter address . .	> 400001240000	000000000001-FFFFFFFF
APPN CP session support	*no	*YES, *NO
APPN node type	*LENNODE	*ENDNODE, *LENNODE...
APPN transmission grp number . .	1	1-20, *CALC
F3=Exit F4=List F5=Refresh F11=Keywords F12=Previous F13=How to use this display		
More...		

Figure 172. Create Controller Description (SNA Host) Screen

In Figure 172 we will be defining "APPN capable" as *YES. The device descriptions for independent LUs will be automatically created, varied on and attached to the right controller using the information defined in the network attributes, the associated mode description, the location list and the application program. It also means that the local system will appear as an End Node or Network Node to the adjacent system.

We will use the line just created and defined in the switched line list.

The remote network identifier and remote control point name must match those defined in the VTAM startup list. Remember that the S/370 subarea does not

support CP-to-CP sessions so you must define "APPN CP session support" to *NO.

The token-ring adapter address of the host controller is 400001240000.

A S/370 host is defined as a *LENNODE in an APPN network.

Press Enter to create your host controller description.

5.11.4 Configure Local and Remote Location Lists

If we define our host controller with APPN(*YES) then we do not have to manually create device descriptions for your independent LUs. This also applies to the device descriptions for the remote locations behind a S/370 subarea network which are defined in the APPN remote location list. The AS/400 will automatically create the device description, vary it on and attach it to the correct controller in the following situations:

- When a session is requested and the route chosen and the controller description doesn't already have a device description with the specified remote location name, remote NETID and local location name attached.
- When a BIND is received for a local location and the controller description doesn't already have a device description with the specified remote location name, remote NETID and local location name.

AS/400 APPN usually doesn't require remote locations to be defined as this information is dynamically added to the directory database through the searches when the AS/400 has CP-to-CP session support. However, when the AS/400 is connected to a Low Entry Network node (for example an S/370) entries need to be added in the remote location list for each LU with which we want to have sessions within the host or behind it. This information can't be obtained dynamically because the S/370 host doesn't support CP-CP sessions.

We don't have to create an entry for the PS/2 in the APPN remote location list because there is no session request from the AS/400B to the PS/2. The PS/2 with AS/400 PC Support can only request sessions with AS/400 PC Support on any AS/400 in the network.

A location entry must be defined in the local location list of the AS/400 to determine that the location with which the PS/2 wants to have sessions resides on this AS/400. The following screens will guide you through the creation of the APPN local location list.

```

CFGCMN          Configure Communications and Remote Hardware
                                     System:  RALYAS4B
Select one of the following:

    1. Lines
    2. Communications controllers
    3. Work station controllers
    4. Communications devices
    5. Printers
    6. Display stations
    7. Modes
    8. Classes-of-service
    9. Configure address and location lists

Selection or command
===> 9

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu

```

Figure 173. Configure Communications and Remote Hardware Screen

Select option 9 to define APPN location lists.

The local location list defines the locations that are defined on the AS/400B. The following screens will add AS4B to the list.

```

CFGLST          Configure Address and Location Lists
                                     System:  RALYAS4B
Select one of the following:

    1. Asynchronous PAD network address lists
    2. Asynchronous remote location list
    3. APPN local location list
    4. APPN remote location list

Selection or command
===> 3

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 174. Configure Address and Location Lists Screen

Select option 3 in Figure 174 to define an APPN local location list.

Work with Configuration Lists				System:	RALYAS4B
Position to			Starting character(s)		
Type options, press Enter.					
2=Change 4=Delete 5=Display 6=Print					
Opt	List	Type	Text		
2	QAPPNLCL	*APPNLCL			
					Bottom
Parameters for option 2 or command					
====>					
F3=Exit F4=Prompt F5=Refresh F6=Create F9=Retrieve F12=Previous					
(C) COPYRIGHT IBM CORP. 1980, 1988.					

Figure 175. Work with Configuration Lists Screen

Select option 2 in Figure 175 to change the QAPPNLCL local list to add AS4B.

Define APPN Local Locations					
Type new/changed information, press Enter.					
Local			Local		
Location	Entry		Location	Entry	
Name	Description		Name	Description	
AS4B	Local LU for TR				
					More...
F3=Exit F12=Previous F17=Top of list F18=Bottom of list					

Figure 176. Define APPN Local Locations Screen

Enter the local location name and its description. We will use AS4B which must match the LU name which is defined in the NCP LU macro for the AS/400B.

5.11.5 Create Mode Description

The mode description describes the session characteristics and number of sessions that will be used to negotiate the allowable values between the local and remote locations. A mode with the same name must exist at both end points. There must also be a mode entry with the same name in VTAM/NCP.

This mode description, QPCSUPP, is created automatically when AS/400 PC Support is installed on your AS/400 and must be used with AS/400 PC Support.

In Figure 177 on page 144 the mode characteristics of QPCSUPP are shown.

Display Mode Description		
Mode description name	MODD	QPCSUPP
Class-of-service	COS	#CONNECT
Maximum number of sessions	MAXSSN	64
Maximum conversations	MAXCNV	64
Locally controlled sessions	LCLCTLSSN	0
Pre-established sessions	PREESTSSN	0
Inbound pacing value	INPACING	7
Outbound pacing value	OUTPACING	7
Max length of request unit	MAXLENRU	2048
Text	TEXT	AS/400 PC Support mode entr
y		
Press Enter to continue.		
F3=Exit F12=Previous		

Figure 177. Display Mode Descriptions Screen

The parameters defined here must match those defined on the remote location.

5.12 Relationship between AS/400B and VTAM/NCP for a Token-Ring Line

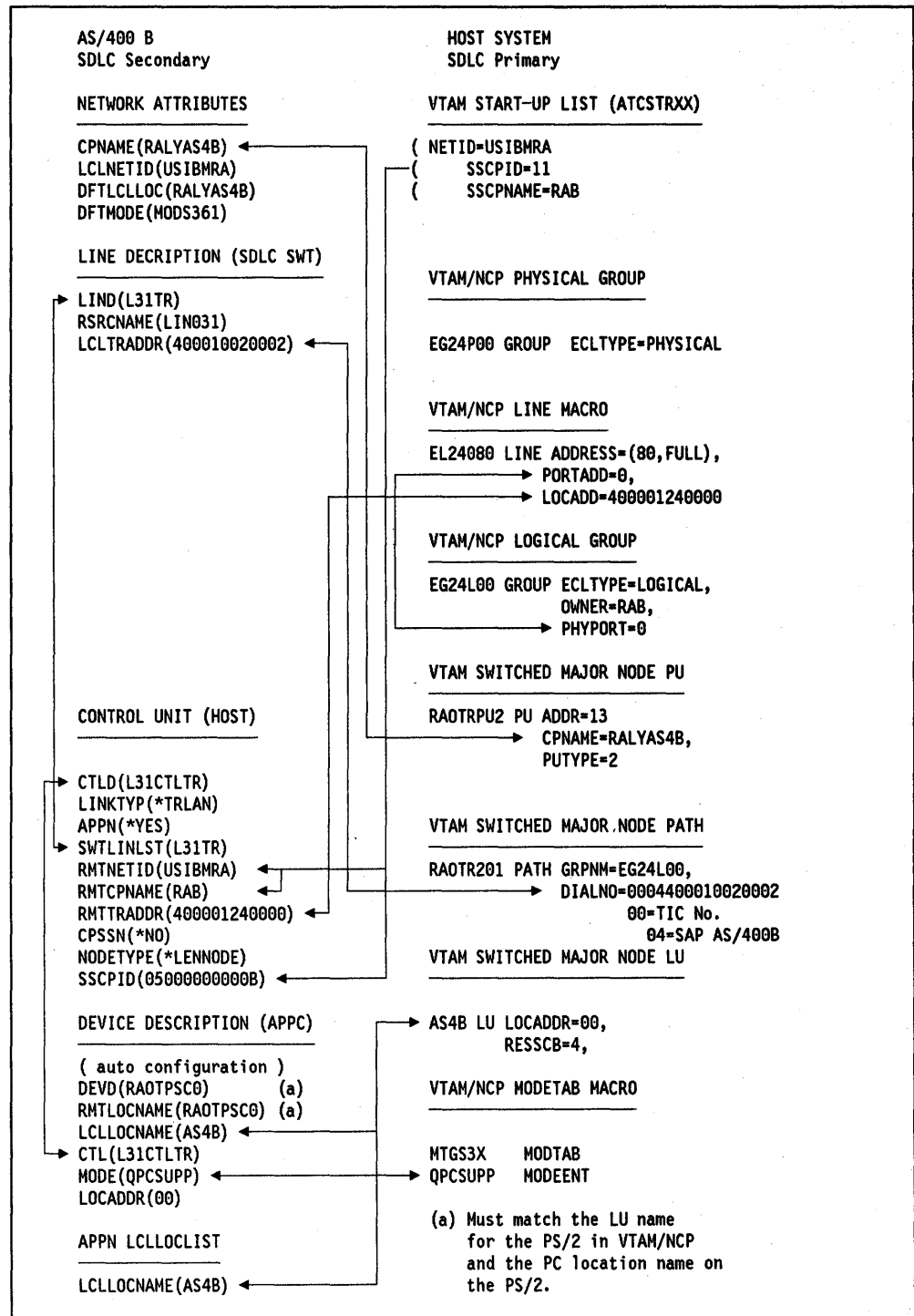


Figure 178. Defining a Switched Link between AS/400 and VTAM/NCP

5.13 Section 2: Additional Definitions Required on the PS/2 (RAOTPSC0)

In order to configure AS/400B into the existing definitions on the PS/2 we need to do the following:

- Modify the CONFIG.PCS file on the PS/2
- Modify the STARTPCS.BAT file on the PS/2.

5.13.1 Modify the CONFIG.PCS File on the PS/2

This file is the PC Support configuration file on the PS/2. To add in the AS/400B we need to add the ADRS identifier to the CONFIG.PCS file.

```
RTYP SDLC
RTLN USIBMRA.RAOTPSC0
SDLI RAOTNNB0,C5,RUSSELL
RTDN RAOTNNB0
SDLT MP
RTCU RUSSELL
SDDE YES
SDMR FULL
SDLF HALF
ADRS AS4B,RAOTNNB0
```

Figure 179. Tailored CONFIG.PCS File for the PS/2 SDLC Link

In Figure 179 the ADRS identifier was added. This identifier specifies the location name of AS4B and the link name of RAOTNNB0. AS4B must match the local location name defined on AS/400B and the LU name defined in VTAM/NCP for AS/400B. RAOTNNB0 must match the name in the link identifier SDLI.

5.13.2 Modify the STARTPCS.BAT File on the PS/2

The contents of this file will depend on how you want the sessions to be setup on your PS/2. For example, the number drive you want to specify and to what system, the number of workstation emulation sessions and to what system. We only changed the STARTPCS.BAT to reflect the additional assigning of folder QIWSFLR from AS4B on drive E, to run the PC Support code from drive C and to include the WSF profile WSF.DAT which we customized to have a screen session to AS/400A and a screen session to AS/400B. For more information on customizing this file you can refer to *PC Support Operations Reference Manual*.

The following screen displays the modified **STARTPCS.BAT** file for section 2.

C: \PCS\STARTRTR C: PCS\CONFIG.PCS ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Start SDLC Router
ECHO ON C: \PCS\FSPC ASSIGN I: QIWSFLR \\RAOTNNB0 ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Assign drive I to AS/400 A folder QIWSFLR
ECHO ON C: \PCS\FSPC ASSIGN E: QIWSFLR \\AS4B ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Assign drive E to AS/400 B folder QIWSFLR
ECHO ON C: \PCS\PCSUPDT I: \ C: \PCS ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Run PC Support Update Function
ECHO ON C: \PCS\STARTMSG C: \PCS\CONFIG.PCS ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Start Message Function
ECHO ON C: \PCS\VPRT ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Start Virtual Print Function
ECHO ON C: \PCS\WSF C: \PCS\WSF.DAT ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Start Workstation Function with profile WSF.DAT.
ECHO ON C: \PCS\STARTWSF 1 ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	WSF Session to AS/400 A
ECHO ON C: \PCS\STARTWSF 2 ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	WSF Session to AS/400 B
ECHO ON C: \PCS\PCO C: \PCS\CONFIG.PCS ECHO OFF : EXIT ECHO ON	Start AS/400 PC Support Organizer

Figure 180. STARTPCS.BAT File

5.14 Section 2: Definitions Required on the S/370 Host

5.14.1 VTAM Switched Major Node Definitions for the AS/400B

```
*****
*
*   VTAM SWITCHED MAJOR NODE FOR AS/400B
*
*****
SWRAOTR VBUILD TYPE=SWNET,          REQUIRED      * X
              MAXNO=12,             REQUIRED      * X
              MAXGRP=5
**
RAOTRPU2 PU   ADDR=13,              COULD BE ANYTHING (NOT USED) * X
              CPNAME=RALYAS4B,      AS/400 B          X
              DISCNT=NO,             * X
              ISTATUS=ACTIVE,        X
              MAXOUT=1,              * X
              MAXPATH=4,             * X
              PUTYPE=2,              * X
              SAPADDR=4,             * X
              SSCPFM=USSSCS,         * X
              MODETAB=MTGS3X,        * X
              DLOGMOD=QPCSUPP,       * X
              VPACING=0
**
RAOTR201 PATH GRPNM=EG24L00,        * X
              DIALNO=0004400010020001, AS400/B TR ADDRESS * X
              GID=1,                * X
              PID=1,                 X
              USE=YES
**
AS4B   LU     LOCADDR=0,             FOR THE AS/400B      * X
              RESSCB=4
**
```

Figure 181. VTAM Switched Major Node Definition for AS/400B

Figure 181 describes the VTAM Switched Major Node definition for the token-ring attachment of AS/400B to the S/370. The PU macro specifies RALYAS4B as the CPNAME for AS/400B. This must match the CP name of AS/400B as defined in the network attributes on the AS/400B.

5.14.2 NCP Definitions for AS/400B

```

***** 03211000
NCP OPT OPTIONS NEWDEFN=(YES,ECHO),USERGEN=(FNMNDFGN) 00001008
***** 00008008
* DYNAMIC RECONFIGURATION POOL SPACE * 02060008
***** 02070008
* 02080008
DRPOOLPU PUDRPOOL NUMBER=25 CAN ADD 25 PUS 02090008
* 02110008
DRPOOLLU LUDRPOOL NUMILU=32, RESERVE 32 ILUS X02120008
NUMTYP1=10, RESERVE 10 LUS ON PU.T1 PUS X02130008
NUMTYP2=200 RESERVE 200 LUS ON PU.T2 PUS 02140008
"
***** 03211000
* PHYSICAL GROUP FOR NTRI TIC 1 * 37352800
***** 03211000
EG24P00 GROUP ECLTYPE=PHYSICAL 37351400
* 37351600
EL24080 LINE ADDRESS=(80,FULL),PORTADD=0,LOCADD=400001240000, X37351700
RCVBUFC=4095, X37351800
MAXTSL=1108 37351900
* 37352100
EP24080 PU 37352200
* 37352400
EU24080 LU ISTATUS=INACTIVE 37352500
***** 37352700
* PHYSICAL GROUP FOR NTRI TIC 2 * 37352800
***** 37352900
EG24P01 GROUP ECLTYPE=PHYSICAL 37353000
* STATOPT='NTRI TIC2' 37353100
EL24081 LINE ADDRESS=(81,FULL),PORTADD=1,LOCADD=400001240001, X37353300
RCVBUFC=4095, X37353400
MAXTSL=1108 37353500
EP24081 PU 37353800
* 37354000
EU24081 LU ISTATUS=INACTIVE 37354100
***** 37354200
* LOGICAL GROUP FOR NTRI TIC 1 * 37354300
***** 37354400
EG24L00 GROUP ECLTYPE=LOGICAL, X37354700
AUTOGEN=13, X37354800
CALL=INOUT, X37354900
OWNER=RAB, X37355000
PHYPORT=0 37355100
***** 37355300
* LOGICAL GROUP FOR NTRI TIC 2 * 37355400
***** 37355500
EG24L01 GROUP ECLTYPE=LOGICAL, X37355600
AUTOGEN=12, X37355700
CALL=INOUT, X37355800
PHYPORT=1 37356000
"

```

Figure 182. NCP Definitions for the Token-Ring Connection of AS/400B

5.15 Activate Communications on the AS/400B

This section will describe how to activate AS/400B to the S/370 subarea network. The PS/2 can request a session when the AS/400 line and controller description has been activated.

To activate communications on AS/400B, the line, controller and devices have to be varied on. The following screens will guide you through this exercise.

You can also go directly to the Work with Configuration Status screen by using the WRKCFGSTS command.

```
MAIN                               AS/400 Main Screen                               System:  RALYAS4B
Select one of the following:

    1. User tasks
    2. Office tasks
    3. General system tasks
    4. Files, libraries, and folders
    5. Programming
    6. Communications
    7. Define or change the system
    8. Problem handling
    9. Display a menu

    90. Sign off*

Selection or command
===> 6

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F23=Set initial menu

(C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 183. AS/400 Main Screen

Select option 6 in Figure 183 to go to the communications screen.

```
CMN                               Communications                               System:  RALYAS4B
Select one of the following:

    1. Communication status
    2. Messages
    3. Remote jobs
    4. Configure communications
    5. Network management
    6. Network configuration
    7. Verify communications
    8. Send or receive files
    9. Jobs

    70. Related commands

Selection or command
===> 1

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 184. Communications Screen

Select option 1 in Figure 184 for the communications status.

CMNSTS	Communications Status	System: RALYAS4B
Select one of the following:		
1. Work with line status 2. Work with controller status 3. Work with device status 70. Related commands		
Selection or command		
==> 1		
F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support F16=System main menu		
(C) COPYRIGHT IBM CORP. 1980, 1988.		

Figure 185. Communications Status Screen

Select option 1 in Figure 185 to work with line status.

WRKCFGSTS	Work with Configuration Status
Type choices, press Enter.	
Type	> *LIN *LIN, *CTL, *DEV
Configuration description . . .	> l31tr Name, generic*, *ALL , *CMN...
F3=Exit F4=List F5=Refresh F11=Keywords F12=Previous F13=How to use this display	

Figure 186. Work with Communications Status Screen

Type the line description name in Figure 186 to work with line status.

Work with Configuration Status		System: RALYAS4B
Position to	Starting character(s)	
Type options, press Enter.		
1=Vary on 2=Vary off 3=Hold device 4=End recovery 5=Work with job 6=Release device 7=Resume recovery		
Opt	Lin/Ctl/Dev/Mod	Status -----Job-----
1	L31TR	VARIED OFF
More...		
Parameters for options 1, 2, 3 or command		
==>		
F3=Exit F4=Prompt F5=Refresh F9=Retrieve F12=Previous F14=Work with lines		
(C) COPYRIGHT IBM CORP. 1980, 1988.		

Figure 187. Work with Communications Status Screen

Type option 1 to vary on the line in Figure 187.

CMNSTS	Communications Status	System: RALYAS4B
Select one of the following:		
1. Work with line status 2. Work with controller status 3. Work with device status		
70. Related commands		
Selection or command		
==> 2		
F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support F16=System main menu		
(C) COPYRIGHT IBM CORP. 1980, 1988.		

Figure 188. Communications Status Screen

Select option 2 in Figure 188 to work with controller status.

Work with Configuration Status		System: RALYAS4B
Position to	Starting character(s)	
Type options, press Enter.		
1=Vary on 2=Vary off 3=Hold device 4=End recovery 5=Work with job 6=Release device 7=Resume recovery		
Opt	Lin/Ctl/Dev/Mod	Status
1	L31CTLTR	VARIED OFF
		-----Job-----
		More...
Parameters for options 1, 2, 3 or command		
==>		
F3=Exit F4=Prompt F5=Refresh F9=Retrieve F12=Previous F14=Work with lines		
(C) COPYRIGHT IBM CORP. 1980, 1988.		

Figure 189. Work with Communications Status Screen

Work with Configuration Status		System: RALYAS4B
Position to	Starting character(s)	
Type options, press Enter.		
1=Vary on 2=Vary off 3=Hold device 4=End recovery 5=Work with job 6=Release device 7=Resume recovery		
Opt	Lin/Ctl/Dev/Mod	Status
	L31TR	ACTIVE
	L31CTLTR	VARIED ON
		-----Job-----
		More...
Parameters for options 1, 2, 3 or command		
==>		
F3=Exit F4=Prompt F5=Refresh F9=Retrieve F12=Previous F14=Work with lines		
(C) COPYRIGHT IBM CORP. 1980, 1988.		

Figure 190. Work with Communications Status Screen

If you select F5 to refresh the screen in Figure 187 on page 151 the token-ring line is **ACTIVE** and the controller is **VARIED ON**. The refreshed screen is shown in Figure 190.

5.16 Activating Communications on the S/370 Host for AS/400B

```
NCCF      N E T V I E W      RABAN WTCR21    06/07/89 09:23:42
* RABAN   V NET,ACT,ID=SWRAOTR  ←-----
RABAN     IST097I VARY      ACCEPTED
RABAN     IST093I SWRAOTR  ACTIVE
C RABAN   ▶AOPNLIST SWRAOTR NONE
RABAN     IST097I DISPLAY  ACCEPTED
```

Figure 191. Activate Switched Major Node for AS/400B

AS/400B is a T2.1 node connected to the S/370 host via a token-ring. Therefore, we need to activate the switched major node for the token-ring. To do this we issue the VTAM command "V NET,ACT,ID=SWTAOTR" as shown in Figure 191.

```
NCCF      N E T V I E W      RABAN WTCR21    06/07/89 09:24:07
C RABAN   DISPLAY NET,ID=SWRAOTR,SCOPE=ALL
RABAN     IST097I DISPLAY  ACCEPTED
' RABAN
IST075I   NAME = SWRAOTR      , TYPE = SW SNA MAJ NODE
IST486I   STATUS= ACTIV      , DESIRED STATE= ACTIV
IST084I   NETWORK NODES:
IST089I   RAOTRPU1 TYPE = PHYSICAL UNIT , CONCT
IST089I   RAOTRPS0 TYPE = LOGICAL UNIT  , CONCT
IST089I   RAOTRPU2 TYPE = PHYSICAL UNIT  , ACTIV
IST089I   AS4B    TYPE = LOGICAL UNIT    , ACT/S
```

Figure 192. Display Switched Major Node for AS/400B

Figure 192 displays the status of switched major node.

```
NCCF      N E T V I E W      RABAN WTCR21    06/07/89 09:24:48
C RABAN   DISPLAY NET,ID=RAOTRPU2,SCOPE=ALL
RABAN     IST097I DISPLAY  ACCEPTED
' RABAN
IST075I   NAME = RAOTRPU2     , TYPE = PU_T2.1  ←-----
IST486I   STATUS= ACTIV      , DESIRED STATE= ACTIV
IST136I   SWITCHED SNA MAJOR NODE = SWRAOTR
IST081I   LINE NAME = J0000019, LINE GROUP = EG24L00 , MAJNOD = RAONCP1
IST654I   I/O TRACE = OFF, BUFFER TRACE = OFF
IST355I   LOGICAL UNITS:
IST080I   AS4B    ACT/S
IST314I   END
```

Figure 193. Display PU for AS/400B

Figure 193 displays the status of the PU for AS/400B. Notice that the PU is seen as a T2.1 after activation.

```

NCCF      N E T V I E W      RABAN WTCR21      06/07/89 09:26:03
C RABAN   DISPLAY NET, ID=AS4B, SCOPE=ALL
RABAN     IST097I DISPLAY ACCEPTED
' RABAN
IST075I   NAME = AS4B           , TYPE = LOGICAL UNIT
IST486I   STATUS= ACT/S        , DESIRED STATE= ACTIV
IST861I   MODETAB=MTGS3X      USSTAB=***NA*** LOGTAB=***NA***
IST934I   DLOGMOD=QPCSUPP
IST597I   CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST135I   PHYSICAL UNIT = RAOTRPU2
IST136I   SWITCHED SNA MAJOR NODE = SWRAOTR
IST082I   DEVTYPE = INDEPENDENT LU  ←-----
IST654I   I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I   ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000000
IST206I   SESSIONS:
IST634I   NAME      STATUS      SID      SEND RECV VR TP NETID
IST635I   RAOTPSC0 ACTIV-P     CF0384B97D20BF9F      0 0 USIBMRA
IST314I   END

```

Figure 194. Display LU for AS/400B

Figure 194 displays the status of the LU for AS/400B. Notice the new device type of "Independent LU".

If you look at IST635I you will see that this AS/400 LU has an active session with the PS/2 (RAOTPSC0).

```

NCCF      N E T V I E W      RABAN WTCR21      06/07/89 09:30:33
C RABAN   DISPLAY NET, ID=RAOTPSC0, SCOPE=ALL
RABAN     IST097I DISPLAY ACCEPTED
' RABAN
IST075I   NAME = RAOTPSC0      , TYPE = LOGICAL UNIT
IST486I   STATUS= ACT/S        , DESIRED STATE= ACTIV
IST861I   MODETAB=MTGS3X      USSTAB=***NA*** LOGTAB=***NA***
IST934I   DLOGMOD=MODS361
IST597I   CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST081I   LINE NAME = RAOL0020, LINE GROUP = RAOGSFLO, MAJNOD = RAONCP1
IST135I   PHYSICAL UNIT = RAOP5C
IST082I   DEVTYPE = INDEPENDENT LU
IST654I   I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I   ACTIVE SESSIONS = 0000000005, SESSION REQUESTS = 0000000000
IST206I   SESSIONS:
IST634I   NAME      STATUS      SID      SEND RECV VR TP NETID
IST635I   RAOTNNB0 ACTIV-S     CF0384B97D20BF9A      0 0 USIBMRA
IST635I   AS4B      ACTIV-S     CF0384B97D20BF9F      0 0 USIBMRA
IST635I   RAOTNNB0 ACTIV-S     CF0384B97D20BF87      0 0 USIBMRA
IST635I   RAOTNNB0 ACTIV-S     CF0384B97D20BF88      0 0 USIBMRA
IST635I   RAOTNNB0 ACTIV-S     CF0384B97D20BFDA      0 0 USIBMRA
IST314I   END

```

Figure 195. Display LU for PS/2

Figure 195 displays the status of the LU for PS/2. Notice the new device type of "Independent LU".

If you look at IST635I you will see that this PS/2 LU has an active session with AS/400B (AS4B).

6.0 Scenario 3: PS/2 (DOS3.3) -- S/370 -- AS/400A -- AS/400B

6.1 Environment Tested

In this chapter we will describe the definitions required to connect the AS/400B to the AS/400A via a token-ring and and secondly how the PS/2 with AS/400 PC Support can establish sessions with both AS/400A and AS/400B which are situated behind the S/370 subarea network.

This scenario is an extension to scenario 2 because all we have done is take AS/400B from the host and attach it to AS/400A.

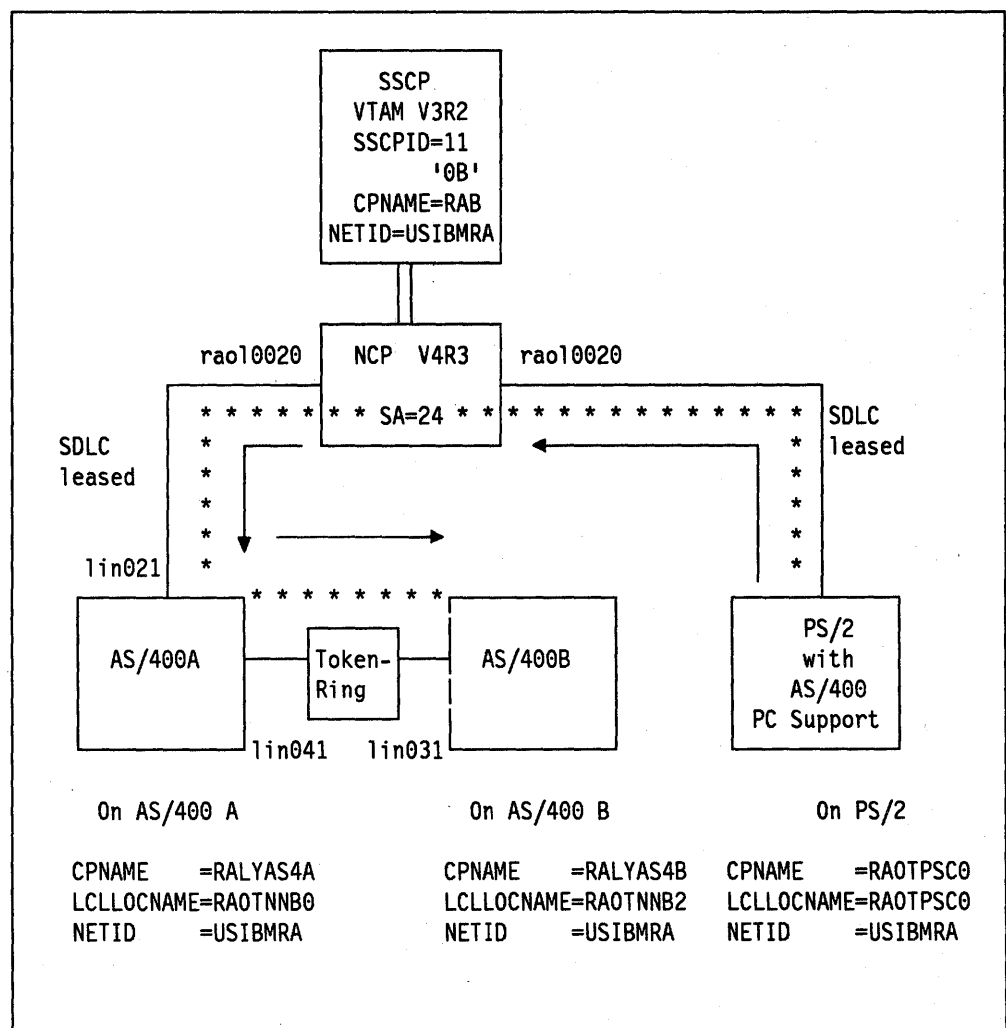


Figure 196. Scenario 3

6.2 Definitions on AS/400A (RALYAS4A) for AS/400B (RALYAS4B)

When you are going to connect AS/400A as an APPN network node to AS/400B via a token-ring you are required to perform the following steps:

- Check the network attributes
- Create a line description from the AS/400A to AS/400B
- Create an APPC controller description for AS/400B
- Configure APPN remote and local location lists
- Create a mode entry.

6.2.1 Network Attributes

The network attributes contains the AS/400's local system values for APPN. You can display these attributes by using the DSPNETA command or by going to menu "NETWORK".

MAIN

AS/400 Main Menu

System: RALYAS4A

Select one of the following:

1. User tasks
2. Office tasks
3. General system tasks
4. Files, libraries, and folders
5. Programming
6. Communications
7. Define or change the system
8. Problem handling
9. Display a menu

90. Sign off

Selection or command
==> dspneta

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
F23=Set initial menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 197. AS/400 Main Menu Screen

Type DSPNETA to display the network attributes.

Display Network Attributes		System: RALYAS4A
Current system name	:	RALYAS4A
Pending system name	:	
Local network ID	:	USIBMRA
Local control point name	:	RALYAS4A
Default local location	:	RALYAS4A
Default mode	:	MODS361
Maximum number of conversations for a remote location	:	64
APPN node type	:	*NETNODE
Maximum number of intermediate sessions	:	200
Route addition resistance	:	128
Server network ID/control point name	:	
		More...
Press Enter to continue.		
F3=Exit F12=Previous		

Figure 198. Display Network Attributes Screen

Notice we have defined the local control point name, local network ID, default location name and APPN node type. You can change these parameters by the CHGNETA command or by taking option 2 from the Network menu.

Display Network Attributes		System: RALYAS4A
Alert status	:	*UNATTEND
Alert primary focal point	:	*NO
Alert default focal point	:	*NO
Alert logging status	:	*ALL
Alert controller description	:	P24020D
Message queue	:	QSYSOPR
Library	:	QSYS
Output queue	:	QPRINT
Library	:	QGPL
Job action	:	*FILE
Maximum hop count	:	16
DDM request access	:	*OBJAUT
PC Support request access	:	*OBJAUT
Press Enter to continue.		
F3=Exit F12=Previous		

Figure 199. Display Network Attributes Screen (continued)

P24020D is the alert controller description which can be used to send up alerts coming from this APPN network to NetView. For more information on alerts see *Management of AS/400 in SNA Subarea Network using Network Products*.

6.2.2 Create Line Description

The first step in defining AS/400A to AS/400B is to create the line description. You can do this by either following the screens documented or by using the CL command CRTLINTRN.

```
MAIN                      AS/400 Main Menu                      System:  RALYAS4A

Select one of the following:

    1. User tasks
    2. Office tasks
    3. General system tasks
    4. Files, libraries, and folders
    5. Programming
    6. Communications
    7. Define or change the system
    8. Problem handling
    9. Display a menu

    90. Sign off

Selection or command
===> 6

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F23=Set initial menu

(C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 200. AS/400 Main Menu Screen

Select option 6 in Figure 200 to go to the Communications screen.

```
CMN                      Communications                      System:  RALYAS4A

Select one of the following:

    1. Communication status
    2. Messages
    3. Remote jobs
    4. Configure communications
    5. Network management
    6. Network configuration
    7. Verify communications
    8. Send or receive files
    9. Jobs

    70. Related commands

Selection or command
===> 4

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 201. Communications Screen

Select option 4 in Figure 201 to configure communications.

```

CFGCMN          Configure Communications and Remote Hardware
                                           System:  RALYAS4A
Select one of the following:

    1. Lines
    2. Communications controllers
    3. Work station controllers
    4. Communications devices
    5. Printers
    6. Display stations
    7. Modes
    8. Classes-of-service
    9. Configure address and location lists

Selection or command
===> 1

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu
                                           (C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 202. Configure Communications and Remote Hardware Screen

Select option 1 in Figure 202 to define your line description.

```

                                Work with Line Descriptions
                                           System:  RALYAS4A
Position to . . . . . Starting character(s)

Type options, press Enter.
    2=Change  3=Copy  4=Delete  5=Display  6=Print

Opt  Line      Type  Text
-
Parameters for option 2 or command
===>
F3=Exit  F4=Prompt  F5=Refresh  F6=Create  F9=Retrieve  F12=Previous
F14=Work with status
                                           (C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 203. Work with Line Descriptions Screen

Select option F6 in Figure 203 to create the line description.

```

                                Create Line Description

Type choices, press Enter.

New line description  L41TR      Name
Line type . . . . . *TRLAN      *ASYN=Asynchronous communications
                                   *BSC=Binary synchronous communications
                                   *SDLC=Synchronous data link control
                                   *TDL=Token-Ring local area network
                                   *X25=X.25 communications network

F3=Exit  F12=Previous

```

Figure 204. Create Line Description Screen

The line type we are using is *TRLAN.

```

CRTLINTRN          Create Line Desc (Token-Ring)

Type choices, press Enter.

Line description . . . . . ▶ L41TR          Name
Resource name . . . . . lin041             Name
Online at IPL . . . . . *YES               *YES, *NO
Vary on wait . . . . . *NOWAIT             *NOWAIT, 15-180 (1 second)
Maximum controllers . . . . . 40           1-256
Maximum frame size . . . . . 1994         265, 521, 1033, 1994
Local adapter address . . . . . 400010020001 4000000000000-7FFFFFFF...
Exchange identifier . . . . . *SYSGEN      05600000-056FFFFF, *SYSGEN
SSAP list:
  Source Service Access Point . . *SYSGEN   *SYSGEN, 04, 08, 0C, 10...
    + for more values
Text 'description' . . . . . Token-Ring Line Description to AS/400B
F3=Exit  F4=List  F5=Refresh  F10=Additional parameters  F11=Keywords
F12=Previous  F13=How to use this display

```

Figure 205. Create Line Description (TRLAN) Screen

The resource name is the name of the physical communications port on the AS/400. It can be found by executing the command WRKHDWPRD and taking the option to work with your rack configuration.

The local token-ring adapter address of AS/400A is 400010020001.

The exchange identifier parameter is not needed because we use the CPNAME for remote system identification.

Press Enter to create your line description to AS/400B. It will return you to the Work with Line Descriptions screen.

6.2.3 Create APPC Controller Description

Now you must create an APPC controller description which describes AS/400B you are connecting to. Again, you can follow the screens or enter the CL command CRTCTLAPPC.

```
CFGCMN          Configure Communications and Remote Hardware
                                     System:  RALYAS4A
Select one of the following:

1. Lines
2. Communications controllers
3. Work station controllers
4. Communications devices
5. Printers
6. Display stations
7. Modes
8. Classes-of-service
9. Configure address and location lists

Selection or command
===> 2

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu
                                     (C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 206. Configure Communications and Remote Hardware Screen

Select option 2 in Figure 206 to configure your APPC controller.

```
Work with Controller Descriptions
                                     System:  RALYAS4A
Position to . . . . . Starting character(s)

Type options, press Enter.
2=Change 3=Copy 4=Delete 5=Display 6=Print

Opt  Controller  Type  Text
    QESCTL      *HOST
    QTICTL      *HOST

Parameters for option 2 or command
===>
F3=Exit  F4=Prompt  F5=Refresh  F6=Create  F9=Retrieve  F12=Previous
F14=Work with status
                                     (C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 207. Work with Controller Descriptions Screen

Select F6 to create your APPC controller description.

Create Controller Description		
Type choices, press Enter.		
New controller description	TRNAS400B	Name
Controller type/class	*APPC	*APPC=Advanced program-to-program communications *ASYN=Asynchronous communications *BSC=Binary synchronous communications *FNC=Finance *HOST=SNA host
F3=Exit F12=Previous		

Figure 208. Create Controller Description Screen

We will be defining *APPC as our controller type as we will be communicating to AS/400B.

CRTCTLAPPC Create Ctl Desc (APPC)		
Type choices, press Enter.		
Controller description	▶ TRNAS400B	Name
Link type	▶ *TRLAN	*SDLC, *TRLAN, *X25
Online at IPL	*YES	*YES, *NO
APPN capable	*YES	*YES, *NO
Switched line list	▶ L41TR	Name
+ for more values		
Maximum frame size	*LINKTYPE	*LINKTYPE, 265, 521, 1033...
Remote network identifier . . .	▶ USIBMRA	Name, *NETATR, *NONE
Remote control point name . . .	▶ RALYAS4B	Name
SSCP identifier	▶	050000000000-05FFFFFFFF
Initial connection	*DIAL	*DIAL, *ANS
TRLAN remote adapter address . .	▶ 400010020002	000000000001-FFFFFFFF
APPN CP session support	*YES	*YES, *NO
APPN node type	*NETNODE	*ENDNODE, *LENNODE...
APPN transmission grp number . .	1	1-20, *CALC
F3=Exit F4=List F5=Refresh F11=Keywords F12=Previous More...		
F13=How to use this display		

Figure 209. Create Controller Description (APPC) Screen

In Figure 209 we will be defining "APPN capable" as *YES. The APPC device descriptions will be automatically created, varied on and attached to the right controller using the information defined in the network attributes, the associated mode description, the location list and the application program. It also means that the local system will appear as an End Node or Network Node to the adjacent system.

We will use the switched line list name to the token-ring name we have just created.

Because we are defining APPC communications between two AS/400's, we select to have CP-CP session support. The AS/400B can be an End Node or Network Node. We will be able to use all functions of APPN, for example, intermediate session routing and directory services.

The token-ring adapter address of AS/400B is 400010020002.

Press Enter to create your APPC controller description.

6.2.4 Configure APPN Remote and Local Location List

Since we defined our APPC controller with APPN(*YES) the device descriptions will be automatically created. After the automatic creation of the devices the AS/400 will vary them on and attach them to the correct controller in the following situations:

- When a session is requested and the route chosen and the controller description doesn't already have a device description with the specified remote location name, remote NETID and local location name defined.
- When a BIND is received for a local location and the controller description doesn't already have a device description with the specified remote location name, remote NETID and local location name defined.

AS/400A, in this scenario, doesn't require the remote location of AS/400B to be defined as this information is dynamically acquired through the network. It does this by means of a "broadcast" search or a "directed" search across the CP-CP session.

6.2.5 Create Mode Description

The mode description describes the session characteristics and number of sessions that will be used to negotiate the allowable values between the local and remote locations. A mode with the same name must exist at both end points. There must also be a mode entry with the same name in VTAM/NCP.

This mode description QPCSUPP is created automatically when AS/400 PC Support is installed on AS/400B.

In Figure 210 the mode characteristics of QPCSUPP are shown.

Display Mode Description		
Mode description name	MODD	QPCSUPP
Class-of-service	COS	#CONNECT
Maximum number of sessions	MAXSSN	64
Maximum conversations	MAXCNV	64
Locally controlled sessions	LCLCTLSSN	0
Pre-established sessions	PREESTSSN	0
Inbound pacing value	INPACING	7
Outbound pacing value	OUTPACING	7
Max length of request unit	MAXLENRU	2048
Text	TEXT	AS/400 PC Support mode entr
y		
Press Enter to continue.		
F3=Exit F12=Previous		

Figure 210. Display Mode Descriptions Screen

The parameters defined here must match those defined on the remote location.

6.3 Definitions on AS/400A (RALYAS4A) for the S/370 Host

When you are going to connect AS/400A as an APPN node to an S/370 subarea to support independent LUs you are required to perform the following:

- Check the network attributes
- Create a line description from AS/400A to VTAM/NCP
- Create an APPC controller description for the host
- Configure APPN remote and local location lists
- Create a mode entry.

We have already defined the definitions required to connect AS/400A to the host. You can find this information in 5.0, "Scenario 2: AS/400A, AS/400B and PS/2 Adjacent to the Host" on page 99.

6.4 Definitions on AS/400B (RALYAS4B) for AS/400A (RALYAS4A)

When you are going to connect AS/400B as an APPN network node to AS/400A you are required to perform the following steps:

- Check the network attributes
- Create a line description from AS/400B to AS/400A
- Create an APPC controller description for AS/400A
- Configure APPN remote and local location lists
- Create a mode entry

6.4.1 Network Attributes

The network attributes contains the AS/400's local system values for APPN. You can display these attributes by using the DSPNETA command or by going to menu "NETWORK".

MAIN	AS/400 Main Menu	System: RALYAS4B
------	------------------	------------------

Select one of the following:

1. User tasks
2. Office tasks
3. General system tasks
4. Files, libraries, and folders
5. Programming
6. Communications
7. Define or change the system
8. Problem handling
9. Display a menu

90. Sign off

Selection or command
 ==> dspneta

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
 F23=Set initial menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 211. AS/400 Main Menu Screen

Type DSPNETA to display the network attributes.

Display Network Attributes		System: RALYAS4B
----------------------------	--	------------------

Current system name	: RALYAS4B
Pending system name	:
Local network ID	: USIBMRA
Local control point name	: RALYAS4B
Default local location	: RALYAS4B
Default mode	: MODS361
Maximum number of conversations for a remote location	: 64
APPN node type	: *NETNODE
Maximum number of intermediate sessions	: 200
Route addition resistance	: 128
Server network ID/control point name	:

More...

Press Enter to continue.

F3=Exit F12=Previous

Figure 212. Display Network Attributes Screen

Notice we have defined the local control point name, local network ID, default location name and APPN node type. You can change these parameters by the CHGNETA command or by taking option 2 from the Network menu.

Display Network Attributes		System: RALYAS4B
Alert status	:	*UNATTEND
Alert primary focal point	:	*NO
Alert default focal point	:	*NO
Alert logging status	:	*ALL
Alert controller description	:	
Message queue	:	QSYSOPR
Library	:	QSYS
Output queue	:	QPRINT
Library	:	QGPL
Job action	:	*FILE
Maximum hop count	:	16
DDM request access	:	*OBJAUT
PC Support request access	:	*OBJAUT
Press Enter to continue.		
F3=Exit F12=Previous		

Figure 213. Display Network Attributes Screen (continued)

6.4.2 Create Line Description

The first step in defining AS/400B to AS/400A is to create the line description. You can do this by either following the screens documented or by using the CL command CRTLINTRN.

```
MAIN                                AS/400 Main Menu                                System:  RALYAS4B

Select one of the following:

    1. User tasks
    2. Office tasks
    3. General system tasks
    4. Files, libraries, and folders
    5. Programming
    6. Communications
    7. Define or change the system
    8. Problem handling
    9. Display a menu

    90. Sign off

Selection or command
===> 6

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F23=Set initial menu

(C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 214. AS/400 Main Menu Screen

Select option 6 in Figure 214 to go to the Communications screen.

```
CMN                                Communications                                System:  RALYAS4B

Select one of the following:

    1. Communication status
    2. Messages
    3. Remote jobs
    4. Configure communications
    5. Network management
    6. Network configuration
    7. Verify communications
    8. Send or receive files
    9. Jobs

    70. Related commands

Selection or command
===> 4

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 215. Communications Screen

Select option 4 in Figure 215 to configure communications.

```

CFGCMN          Configure Communications and Remote Hardware
                                           System:  RALYAS4B
Select one of the following:

    1. Lines
    2. Communications controllers
    3. Work station controllers
    4. Communications devices
    5. Printers
    6. Display stations
    7. Modes
    8. Classes-of-service
    9. Configure address and location lists

Selection or command
===> 1

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu
                                           (C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 216. Configure Communications and Remote Hardware Screen

Select option 1 in Figure 216 to define your line description.

```

                                Work with Line Descriptions
                                           System:  RALYAS4B
Position to . . . . . Starting character(s)

Type options, press Enter.
    2=Change  3=Copy  4=Delete  5=Display  6=Print

Opt  Line      Type  Text
                                           More...

Parameters for option 2 or command
===>
F3=Exit  F4=Prompt  F5=Refresh  F6=Create  F9=Retrieve  F12=Previous
F14=Work with status
                                           (C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 217. Work with Line Descriptions Screen

Select option F6 to create the line description in Figure 217.

```

                                Create Line Description

Type choices, press Enter.

New line description  l3ltr      Name
Line type . . . . . *trlan      *ASYNC=Asynchronous communications
                                   *BSC=Binary synchronous communications
                                   *SDLC=Synchronous data link control
                                   *TDLC=Twinaxial data link control
                                   *TRLAN=Token-Ring local area network
                                   *X25=X.25 communications network

F3=Exit  F12=Previous

```

Figure 218. Create Line Description Screen

The line type we are using is *TRLAN.

CRTLINTRN		Create Line Desc (Token-Ring)	
Type choices, press Enter.			
Line description	► L31TR	Name	
Resource name	lin031	Name	
Online at IPL	*YES	*YES, *NO	
Vary on wait	*NOWAIT	*NOWAIT, 15-180 (1 second)	
Maximum controllers	40	1-256	
Maximum frame size	1994	265, 521, 1033, 1994	
Local adapter address	400010020002	400000000000-7FFFFFFFFF...	
Exchange identifier	*SYSGEN	05600000-056FFFFF, *SYSGEN	
SSAP list:			
Source Service Access Point .	*SYSGEN	*SYSGEN, 04, 08, 0C, 10...	
+ for more values			
Text 'description' Token-Ring Line Description to AS400A *			
F3=Exit F4=List F5=Refresh F10=Additional parameters F11=Keywords			
F12=Previous F13=How to use this display			

Figure 219. Create Line Description (TRLAN) Screen

The resource name is the name of the physical communications port on the AS/400. It can be found by executing the command WRKHDWPRD and taking the option to work with your rack configuration.

The local token-ring adapter address of the AS/400B is 400010020002.

The exchange identifier parameter is not needed because we use the CPNAME for remote system identification.

Press Enter to create your line description to the host. It will return you to the Work with Line Descriptions screen.

6.4.3 Create APPC Controller Description

Now you must create an APPC controller description which describes AS/400A you are connecting to. Again, you can follow the screens or enter the CL command CRTCTLAPPC.

```
CFGCMN          Configure Communications and Remote Hardware          System:  RALYAS4B
Select one of the following:
    1. Lines
    2. Communications controllers
    3. Work station controllers
    4. Communications devices
    5. Printers
    6. Display stations
    7. Modes
    8. Classes-of-service
    9. Configure address and location lists

Selection or command
===> 2

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 220. Configure Communications and Remote Hardware Screen

Select option 2 in Figure 220 to configure your APPC controller.

```
Work with Controller Descriptions          System:  RALYAS4B
Position to . . . . . Starting character(s)
Type options, press Enter.
    2=Change  3=Copy  4=Delete  5=Display  6=Print

Opt  Controller  Type  Text
    QESCTL      *HOST
    QTICTL      *HOST

Parameters for option 2 or command
===>
F3=Exit  F4=Prompt  F5=Refresh  F6=Create  F9=Retrieve  F12=Previous
F14=Work with status

(C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 221. Work with Controller Descriptions Screen

Select F6 to create your APPC controller description.

Create Controller Description

Type choices, press Enter.

New controller description	TRNAS400A	Name
Controller type/class	*APPC	*APPC=Advanced program-to-program communications *ASYN=Asynchronous communications *BSC=Binary synchronous communications *FNC=Finance *HOST=SNA host

F3=Exit F12=Previous

Figure 222. Create Controller Description Screen

We will be defining *APPC as our controller type as we will be communicating to AS/400A.

CRTCTLAPPC Create Ctl Desc (APPC)

Type choices, press Enter.

Controller description	▶ TRNAS400A	Name
Link type	▶ *TRLAN	*SDLC, *TRLAN, *X25
Online at IPL	*YES	*YES, *NO
APPN capable	*YES	*YES, *NO
Switched line list	▶ L41TR	Name
	+ for more values	
Maximum frame size	*LINKTYPE	*LINKTYPE, 265, 521, 1033...
Remote network identifier . . .	▶ USIBMRA	Name, *NETATR, *NONE
Remote control point name . . .	▶ RALYAS4A	Name
SSCP identifier	▶	050000000000-05FFFFFFFF
Initial connection	*DIAL	*DIAL, *ANS
TRLAN remote adapter address . .	▶ 400010020001	000000000001-FFFFFFFF
APPN CP session support	*YES	*YES, *NO
APPN node type	*NETNODE	*ENDNODE, *LENNODE...
APPN transmission grp number . .	1	1-20, *CALC

More...

F3=Exit F4=List F5=Refresh F11=Keywords F12=Previous
 F13=How to use this display

Figure 223. Create Controller Description (APPC) Screen

In Figure 223 we will be defining "APPN capable" as *YES. The APPC device descriptions will be automatically created, varied on and attached to the right controller using the information defined in the network attributes, the associated mode description, the location list and the application program. It also means that the local system will appear as an End Node or Network Node to the adjacent system.

We will use the switched line list name to the token-ring name we have just created.

The remote network identifier and remote control point name must be those defined on AS/400A.

The token-ring adapter address of AS/400A is 400010020001.

Press Enter to create your APPC controller description.

6.4.4 Configure Local and Remote Location Lists

Since we defined our APPC controller with APPN(*YES), the device descriptions will be automatically created. After the automatic creation of the devices the AS/400 will vary them on and attach it to the correct controller in the following situations:

- When a session is requested and the route chosen and the controller description doesn't already have a device description with the specified remote location name, remote NETID and local location name attached.
- When a BIND is received for a local location and the controller description doesn't already have a device description with the specified remote location name, remote NETID and local location name.

AS/400 APPN doesn't require remote locations to be defined as this information is dynamically acquired through the network. It does this by means of a "broadcast" search or a "directed" search across the CP-CP session.

We must however define an entry in the APPN local location list to define the nickname of AS/400B. It must match the LU name in VTAM/NCP definitions.

CFGCMN

Configure Communications and Remote Hardware

System: RALYAS4B

Select one of the following:

1. Lines

2. Communications controllers

3. Work station controllers

4. Communications devices

5. Printers

6. Display stations

7. Modes

8. Classes-of-service

9. Configure address and location lists

Selection or command

==> 9

F3=Exit

F4=Prompt

F9=Retrieve

F12=Previous

F13=User support

F16=System main menu

Figure 224. Configure Communications and Remote Hardware Screen

Select option 9 to define APPN location lists.

The local location list defines the locations that are located on the AS/400B. The following screens will add RAOTNNB2 to the list.

CFGLST	Configure Address and Location Lists	System: RALYAS4B
Select one of the following:		
1. Asynchronous PAD network address lists 2. Asynchronous remote location list 3. APPN local location list 4. APPN remote location list		
Selection or command		
===> 3		
F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support F16=System main menu		
(C) COPYRIGHT IBM CORP. 1980, 1988.		

Figure 225. Configure Address and Location Lists Screen

Select option 3 in Figure 225 to define an APPN local location list.

Work with Configuration Lists		System: RALYAS4B
Position to	Starting character(s)	
Type options, press Enter.		
2=Change 4=Delete 5=Display 6=Print		
Opt	List	Type Text
2	QAPPNLCL	*APPNLCL
Parameters for option 2 or command		Bottom
===>		
F3=Exit F4=Prompt F5=Refresh F6=Create F9=Retrieve F12=Previous (C) COPYRIGHT IBM CORP. 1980, 1988.		

Figure 226. Work with Configuration Lists Screen

Select option 2 in Figure 226 to change the QAPPNLCL local list to add RAOTNNB2.

Define APPN Local Locations			
Type new/changed information, press Enter.			
Local		Local	
Location	Entry	Location	Entry
Name	Description	Name	Description
RAOTNNB2	Local LU for TR		
			More...
F3=Exit F12=Previous F17=Top of list F18=Bottom of list			

Figure 227. Define APPN Local Locations Screen

Enter the local location name and its description. We will use RAOTNNB2 which must match the LU name which is defined in the NCP LU macro for the AS/400A.

6.4.5 Create Mode Description

The mode description describes the session characteristics and number of sessions that will be used to negotiate the allowable values between the local and remote locations. A mode with the same name must exist at both end points. There must also be a mode entry with the same name in VTAM/NCP.

This mode description QPCSUPP is created automatically when AS/400 PC Support is installed on AS/400B.

In Figure 228 the mode characteristics of QPCSUPP are shown.

Display Mode Description		
Mode description name	MODD	QPCSUPP
Class-of-service	COS	#CONNECT
Maximum number of sessions	MAXSSN	64
Maximum conversations	MAXCNV	64
Locally controlled sessions	LCLCTLSSN	0
Pre-established sessions	PREESTSSN	0
Inbound pacing value	INPACING	7
Outbound pacing value	OUTPACING	7
Max length of request unit	MAXLENRU	2048
Text	TEXT	AS/400 PC Support mode entr
y		
Press Enter to continue.		
F3=Exit F12=Previous		

Figure 228. Display Mode Descriptions Screen

The parameters defined here must match those defined on the remote location.

6.5 Relationship between AS/400A and AS/400B

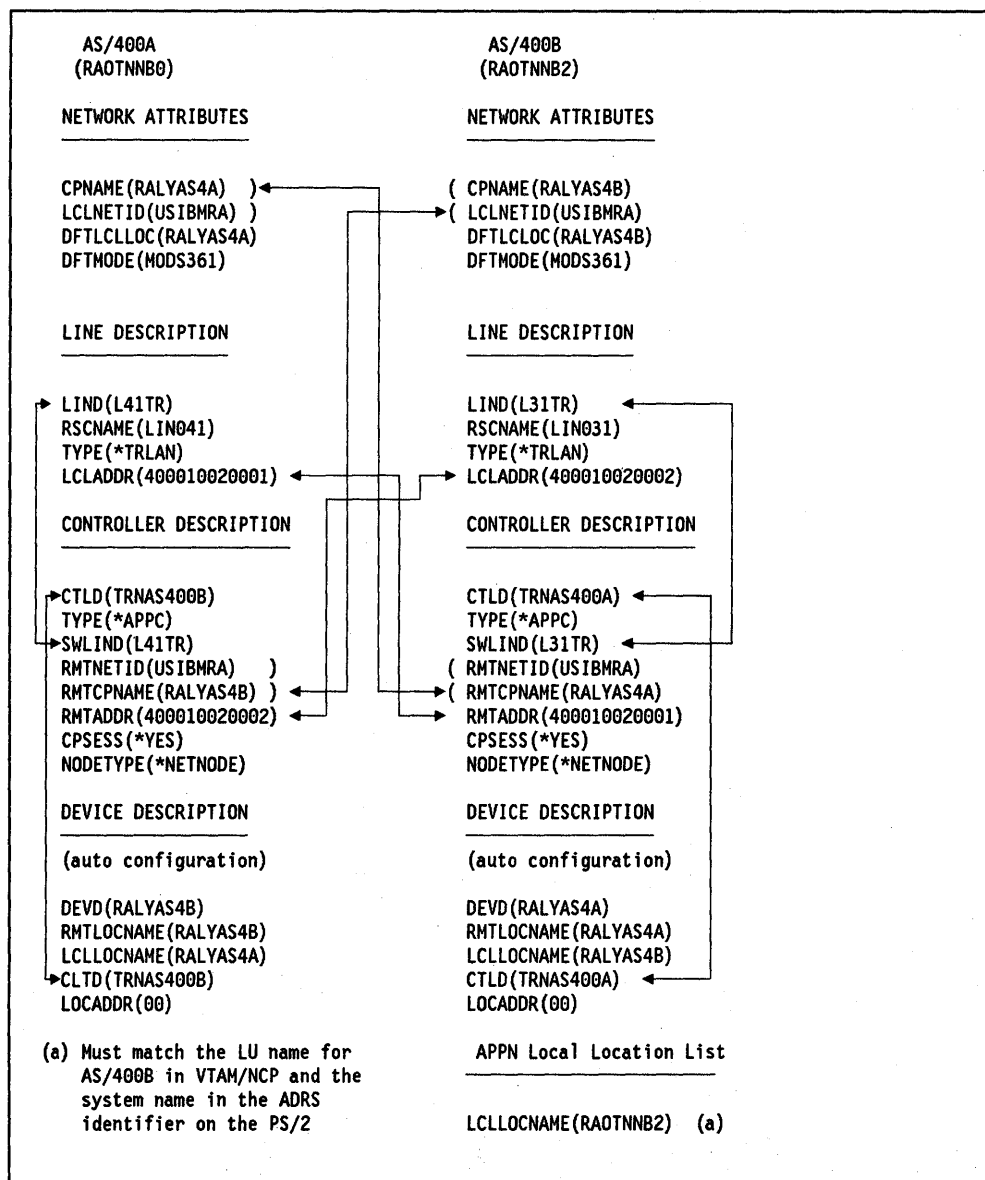


Figure 229. Defining a TRLAN between AS/400A and AS/400B

6.6 Definitions on the PS/2 (RAOTPSC0)

In order to configure AS/400B into the existing definitions on the PS/2 which we created in 5.0, "Scenario 2: AS/400A, AS/400B and PS/2 Adjacent to the Host" on page 99 we need to do the following:

- Modify the CONFIG.PCS file on the PS/2
- Modify the STARTPCS.BAT file on the PS/2.

6.6.1 Modify the CONFIG.PCS File on the PS/2

This file is the PC Support configuration file on the PS/2. To add the remote system RAOTNNB2 (AS/400B) we need to add the ADRS identifier to the CONFIG.PCS file.

```
RTYP SDLC
RTLN USIBMRA.RAOTPC0
SDLI RAOTNNB0,C5,RUSSELL
RTDN RAOTNNB0
SDLT MP
RTCU RUSSELL
SDDE YES
SDMR FULL
SDFL HALF
ADRS RAOTNNB2,RAOTNNB0
```

Figure 230. Tailored CONFIG.PCS File for the PS/2 SDLC Link

In Figure 230 the ADRS identifier was added. This identifier specifies the system name of RAOTNNB2 and the link name of RAOTNNB0. RAOTNNB2 must match the local location name defined on AS/400B and the LU name defined in VTAM/NCP for AS/400A. RAOTNNB0 must match the name in the link identifier SDLI.

6.6.2 Modify the STARTPCS.BAT File on the PS/2

The contents of this file will depend on how you want the sessions to be setup on your PS/2. For example, the number of drives you want to specify and to what system, the number of workstation emulation sessions and to what system. We only changed the STARTPCS.BAT file to reflect the additional assigning of folder QIWSFLR from RAOTNNB2 on drive E, to run the PC Support code from drive 'C' (for performance reasons) and to include the WSF profile WSF.DAT which we customized to have a screen session to AS/400A and a screen session to AS/400B. For more information on customizing this file you can refer to *PC Support Operations Reference Manual*.

The following screen displays the modified **STARTPCS.BAT** file for section 3.

C: \PCS\STARTRTR C: PCS\CONFIG.PCS ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Start SDLC Router
ECHO ON C: \PCS\FSPC ASSIGN I: QIWSFLR //RAOTNNB0 ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Assign drive I to AS/400A folder QIWSFLR
ECHO ON C: \PCS\FSPC ASSIGN E: QIWSFLR //RAOTNNB2 ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Assign drive E to AS/400B folder QIWSFLR
ECHO ON C: \PCS\PCSUPDT I: \ C: \PCS ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Run PC Support Update Function
ECHO ON C: \PCS\STARTMSG C: \PCS\CONFIG.PCS ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Start Message Function
ECHO ON C: \PCS\VPRT ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Start Virtual Print Function
ECHO ON C: \PCS\WSF C: \PCS\WSF.DAT ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Start Workstation Function with profile WSF.DAT.
ECHO ON C: \PCS\STARTWSF 1 ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	WSF Session to AS/400A
ECHO ON C: \PCS\STARTWSF 2 ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	WSF Session to AS/400B
ECHO ON C: \PCS\PCO C: \PCS\CONFIG.PCS ECHO OFF : EXIT ECHO ON	Start AS/400 PC Support Organizer to AS/400A

Figure 231. STARTPCS.BAT file

6.7 Relationship between PS/2 with PC Support and VTAM/NCP

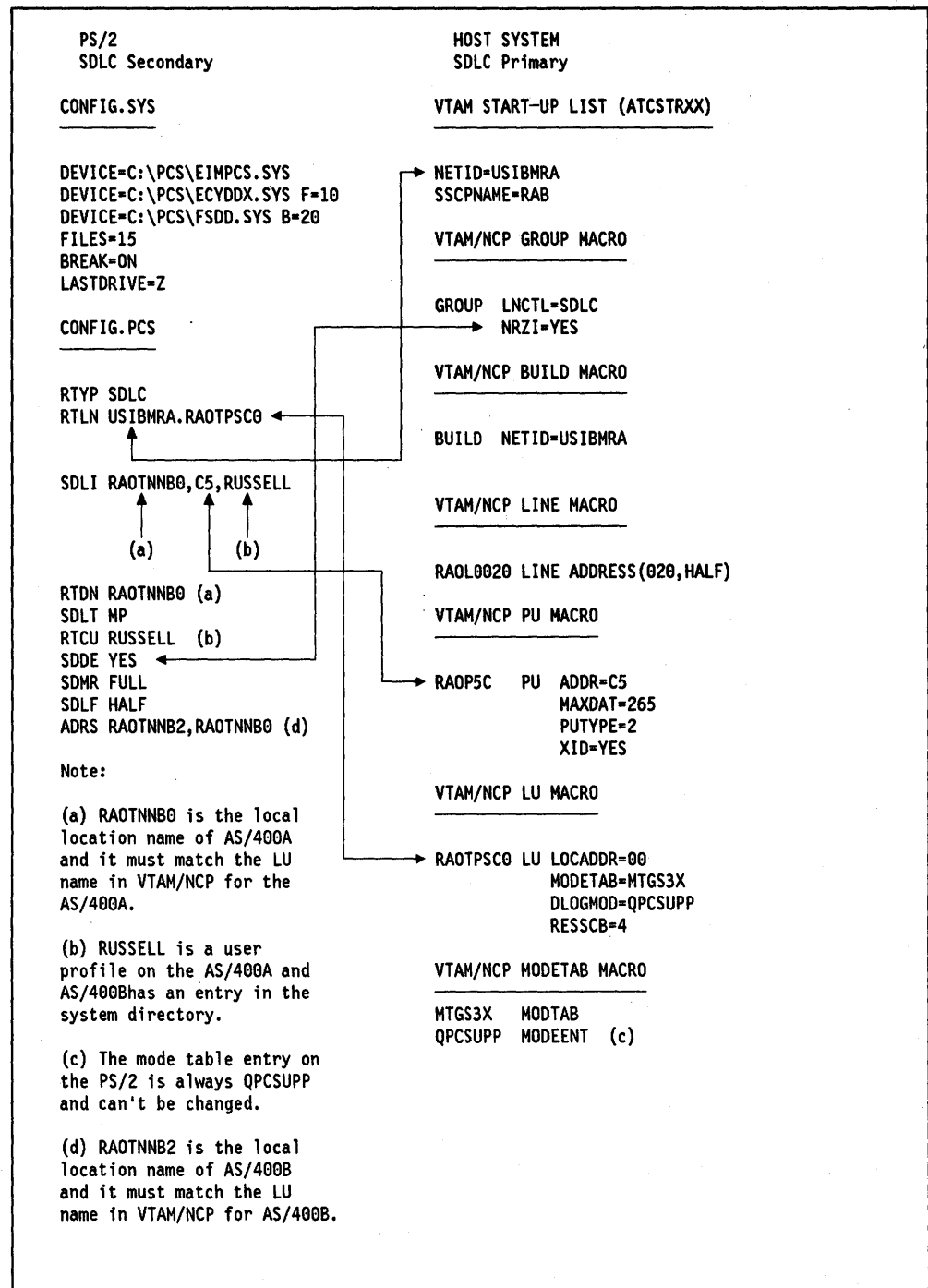


Figure 232. Defining a Leased Line between PS/2 and VTAM/NCP

6.8 Definitions on the S/370 Host (RAB) for the PS/2, AS/400A and AS/400B

```

***** 01220008
*      BUILD MACRO SPECIFICATIONS          * 01230008
***** 01240008
NCPBUILD BUILD VERSION=V4R3,      # NCP V4 REL3      X01250008
      ADSESS=20,      ENOUGH BLOCKS DEFINED IN RESSCB X01260008
      AUXADDR=10,      ADDITIONAL PLU ADDRESSES FOR ILU X01260108
      ENBLTO=6.5,      IBM 386X REQUIRE 6.5 AS MINIMUM X01370008
      MAXSESS=16,      MAX LU-LU SESSIONS ANY LU CAN HAVE X01400008
      MAXSSCP=8,      MAXIMUM SESSIONS FOR LU X01401008
      MODEL=3725,      !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!! X01420008
      NAMTAB=50,      # ENTRIES FOR SSCP, CP & NET NAMES X01430008
      NETID=USIBMRA,   NATIVE NETWORK X01431008
      NEWNAME=RAONCP0, NAME OF THIS LOAD MODULE V3X01440008
      SUBAREA=24,      SUBAREA ADDRESS = 24 X01470008
      COSTAB=ISTDCOS,  COS TABLE USED TO ACTIVATE ER/VR X01520008
      SESSLIM=64      NUMBER OF SESSIONS PER NAF 01580008
      :
      :
      :

```

Figure 233. NCP BUILD Macro for the AS/400A and PS/2

In Figure 233 we define the BUILD macro which indicates the NCP version, the type of communication controller to be used and the name of this load module. It also specifies the NCP subarea of 24. USIBMRA is the network ID for the VTAM/NCP node.

```

***** 04750008
*      LINE MACRO SPECIFICATION      SDLC LINK 020 04760008
***** 04770008
RAOL0020 LINE ADDRESS=(020,HALF), TRANSMIT AND RECEIVE ADDRESSES X04780008
      NPACOLL=YES,      NPAX04790008
      ANS=CONTINUE,      DON'T BREAK CROSS DOMAIN SESSIONS X04800008
      OWNER=RAB,      (V) VTAM X04810008
      ISTATUS=ACTIVE, X04820008
      DUPLEX=(FULL), REQUEST TO SEND ALWAYS UP X04830008
      ETRATIO=30,      DEFAULT X04840008
      LPDATS=LPDA1, X04850008
      MAXPU=9,      ALLOW NO MORE THAN 9 PUS ON LINE X04860008
      SERVLIM=2, X04870008
      SRT=(, 64), X04880008
      SPEED=(4800) LINE SPEED IS 4800 BPS 04890008
      ATTACH=MODEM, # NOT SUPPORTED V4R3 04900008
      STATOPT=('S/36,S/38',NOMONIT) 04910008
***** 04920008
*
*
*      SERVICE MACRO SPECIFICATION FOR SDLC (LINE 020) * 04930008
*
*
***** 04960008
      SERVICE ORDER=(RAOP07, X04970008
      RAOP08, X04980008
      RAOP1B, AS/400A X04981012
      RAOP5C, PS/2 X04982016
      RAOP09), S/38 X04990008
      MAXLIST=9 05000008
***** 05010008

```

Figure 234. NCP Line Macro for the AS/400A and PS/2

In Figure 234 the line RAOL0020 is specified as a non-switched multipoint line attached to the host RAB.

```

***** 07993008
* PU/LU MACRO RESERVED FOR THE AS/400A (RALYAS4A) * 08000008
***** 08010008
*RAOP1B PU ADDR=C4, 3270 ADDRESS='C' (EBCDIC) X 08020008
* 08021009
* PU AND LU DEFINITION FOR AS/400A 08022009
* FOR SUPPORT DEPENDENT AND INDEPENDENT LUS 08023009
* GER ROOVERS EXT.2322 08024009
* 08025009
***** 08026010
RAOP1B PU ADDR=C4, 3270 ADDRESS='C' (EBCDIC) X08029209
MAXDATA=265, MAXIMUM AMOUNT OF DATA X08029309
MAXOUT=7, MAX SDLC FRAMES BEFORE RESPONSE X08029409
PACING=(7), PACING SET BY BIND IMAGE X08029512
ANS=CONTINUE, KEEPS CROSS-DOMAIN RUNNING X08029609
PASSLIM=7, X08029709
PUTYPE=2, X08029809
RETRIES=(,1,4), 4 RETRIES, 1 SECOND BETWEEN X08029909
DISCNT=(NO), (V) VTAM ONLY X08030009
ISTATUS=ACTIVE, (V) VTAM ONLY X08030109
VPACING=8, (V) VTAM ONLY X08030210
XID=YES 08030310
* STATOPT='AS/400 T2.1' 08030410
***** 08030509
* DEFINITIONS FOR AS/400A * 08030609
* RAOTNNB0 TO B3 INDEPENDENT LUS 08030709
***** 08031609
RAOTNNB0 LU RESSCB=4, INDEPENDENT LU for AS/400A X08031710
LOCADDR=0, X08031813
MODETAB=MTGS3X, X08031910
DLOGMOD=MODS361, X08032010
ISTATUS=ACTIVE 08032110
* STATOPT='INDEPENDENT LU' 08032210
RAOTNNB1 LU RESSCB=4, INDEPENDENT LU X08032310
LOCADDR=0, X08032413
MODETAB=MTGS3X, X08032510
DLOGMOD=QPCSUPP, X08032610
ISTATUS=ACTIVE 08032710
* STATOPT='INDEPENDENT LU' 08032810
RAOTNNB2 LU RESSCB=4, INDEPENDENT LU for AS/400B X08032910
LOCADDR=0, X08033013
MODETAB=MTGS3X, X08033110
DLOGMOD=QPCSUPP, X08033210
ISTATUS=ACTIVE 08033310
* STATOPT='INDEPENDENT LU' 08033410
RAOTNNB3 LU RESSCB=4, INDEPENDENT LU X08033510
LOCADDR=0, X08033613
MODETAB=MTGS3X, X08033710
DLOGMOD=MODS361, X08033810
ISTATUS=ACTIVE 08033910
* STATOPT='INDEPENDENT LU' 08034010

```

Figure 235. NCP PU and LU Macro for the AS/400

In Figure 235 the PU "RAOP1B has a PU address of C4 defined. This value has to match the station address defined in the AS/400A controller description for this host.

PUTYPE=2 and XID=YES must be specified so the host appears as a T2.1 node to the AS/400.

The LU used for scenario 3 is RAOTNNB0 for AS/400A and RAOTNNB2 for AS/400B. Because they are independent LUs, we have to specify

LOCADDR=0. RESSCB=4 means that this specific LU has four session control blocks reserved for itself.

```

***** 08043113
* PU/LU MACRO RESERVED FOR THE PS/2 * 08043213
***** 08043313
* PU AND LU DEFINITION FOR PS/2 PC SUPPORT 05/16/89 08043613
* FOR SUPPORT DEPENDENT AND INDEPENDENT LUS 08043713
* GER ROOVERS EXT.2322 08043813
* 08043913
***** 08044013
RAOP5C PU ADDR=C5, 3270 ADDRESS='C' (EBCDIC) X08044115
MAXDATA=265, MAXIMUM AMOUNT OF DATA X08044213
MAXOUT=7, MAX SDLC FRAMES BEFORE RESPONSE X08044313
PACING=(7), PACING SET BY BIND IMAGE X08044413
ANS=CONTINUE, KEEPS CROSS-DOMAIN RUNNING X08044513
PASSLIM=7, X08044613
PUTYPE=2, X08044713
RETRIES=(,1,4), 4 RETRIES, 1 SECOND BETWEEN X08044813
DISCNT=(NO), (V) VTAM ONLY X08044913
ISTATUS=ACTIVE, (V) VTAM ONLY X08045013
VPACING=8, (V) VTAM ONLY X08045113
XID=YES 08045213
* STATOPT='AS/400 T2.1' 08045313
***** 08045413
* DEFINITIONS FOR PS/2 WITH AS/400 PC SUPPORT * 08045513
* RAOTPC0 INDEPENDENT LU 08045613
* 08046413
***** 08046513
RAOTPC0 LU RESSCB=4, INDEPENDENT LU for PS/2 X08046614
LOCADDR=0, X08046713
MODETAB=MTGS3X, X08046813
DLOGMOD=QPCSUPP, X08046913
ISTATUS=ACTIVE 08047013
* STATOPT='INDEPENDENT LU' 08047113
***** 08047208

```

Figure 236. NCP PU and LU Macro for the PS/2

In Figure 236 the PU "RAOP5C has a PU address of C5 defined. The value must match the station address specified for the SDLI identifier in CONFIG.PCS file on the PS/2.

PUTYPE=2 and XID=YES must be specified so the host appears as a T2.1 node to the AS/400.

The LU used for scenario 3 is-RAOTPC0. Because it is an independent LU, we have to specify LOCADDR=0. RESSCB=4 means that this specific LU has four session control blocks reserved for itself.

6.9 Activate Communications on AS/400A to AS/400B

This section will describe how to activate a communications link between AS/400A and AS/400B.

To activate a token-ring line on AS/400A you need to "vary on" the line then the controller. The following screens will guide you through this exercise. You can also go directly to the "Work with Configuration Status" screen by using the WRKCFGSTS command.

MAIN

AS/400 Main Screen

System: RALYAS4A

Select one of the following:

1. User tasks
2. Office tasks
3. General system tasks
4. Files, libraries, and folders
5. Programming
6. Communications
7. Define or change the system
8. Problem handling
9. Display a menu

90. Sign off

Selection or command
==> 6

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
F23=Set initial menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 237. AS/400 Main Screen

Select option 6 in Figure 237 to communications.

CMN	Communications	System: RALYAS4A
-----	----------------	------------------

Select one of the following:

1. Communication status
2. Messages
3. Remote jobs
4. Configure communications
5. Network management
6. Network configuration
7. Verify communications
8. Send or receive files
9. Jobs

70. Related commands

Selection or command
==> 1

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 238. Communications Screen

Select option 1 in Figure 238 to communications status.

CMNSTS	Communications Status	System: RALYAS4A
--------	-----------------------	------------------

Select one of the following:

1. Work with line status
2. Work with controller status
3. Work with device status

70. Related commands

Selection or command
==> 1

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 239. Communications Status Screen

Select option 1 in Figure 239 to work with line status.

WRKCFGSTS	Work with Configuration Status
-----------	--------------------------------

Type choices, press Enter.

Type	► *LIN	*LIN, *CTL, *DEV
Configuration description . . .	► L41TR	Name, generic*, *ALL, *CMN...

F3=Exit F4=List F5=Refresh F11=Keywords F12=Previous
F13=How to use this display

Figure 240. Work with Communications Status Screen

Type the line description name in Figure 240 to work with line status.

```

                                Work with Configuration Status
                                System:  RALYAS4A
Position to . . . . . Starting character(s)

Type options, press Enter.
  1=Vary on  2=Vary off  3=Hold device  4=End recovery  5=Work with job
  6=Release device  7=Resume recovery

Opt Lin/Ctl/Dev/Mod Status -----Job-----
  1  L41TR          VARIED OFF

More...

Parameters for options 1, 2, 3 or command
==>
F3=Exit  F4=Prompt  F5=Refresh  F9=Retrieve  F12=Previous
F14=Work with lines

(C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 241. Work with Communications Status Screen

Select option 1 in Figure 241 to vary on the line.

```

CMNSTS                      Communications Status
                                System:  RALYAS4A
Select one of the following:

  1. Work with line status
  2. Work with controller status
  3. Work with device status

  70. Related commands

Selection or command
==> 2

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 242. Communications Status Screen

Select option 2 in Figure 242 to work with controller status.

```

                                Work with Configuration Status
                                System:  RALYAS4A
Position to . . . . . Starting character(s)

Type options, press Enter.
  1=Vary on  2=Vary off  3=Hold device  4=End recovery  5=Work with job
  6=Release device  7=Resume recovery

Opt Lin/Ctl/Dev/Mod Status -----Job-----
  1  TRNAS400B      VARIED OFF

More...

Parameters for options 1, 2, 3 or command
==>
F3=Exit  F4=Prompt  F5=Refresh  F9=Retrieve  F12=Previous
F14=Work with lines

(C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 243. Work with Communications Status Screen

Select option 1 in Figure 243 to vary on the controller.

Work with Configuration Status		System: RALYAS4A
Position to	Starting character(s)	
Type options, press Enter.		
1=Vary on	2=Vary off	3=Hold device 4=End recovery 5=Work with job
6=Release device	7=Resume recovery	
Opt	Lin/Ctl/Dev/Mod	Status -----Job-----
	L41TR	ACTIVE
	TRNAS400B	ACTIVE
	RALYAS4B	ACTIVE
More...		
Parameters for options 1, 2, 3 or command		
==>		
F3=Exit	F4=Prompt	F5=Refresh F9=Retrieve F12=Previous
F14=Work with lines		
(C) COPYRIGHT IBM CORP. 1980, 1988.		

Figure 244. Work with Communications Status Screen

If you select F5 to refresh the screen in Figure 241 on page 187 the token-ring line is ACTIVE and the controller is ACTIVE. Because we specified CP-CP session support and APPN *YES the device descriptions are automatically created, attached to the right controller and varied on. The refreshed screen is shown in Figure 244.

6.10 Activate Communications on AS/400B to AS/400A

This section will describe how to activate a communications link between AS/400B and AS/400A.

To activate a token-ring line on AS/400B you need to "vary on" the line, then the controller. The following screens will guide you through this exercise. You can also go directly to the Work with Configuration Status screen by using the WRKCFGSTS command.

MAIN

AS/400 Main Screen

System: RALYAS4B

Select one of the following:

1. User tasks

2. Office tasks

3. General system tasks

4. Files, libraries, and folders

5. Programming

6. Communications

7. Define or change the system

8. Problem handling

9. Display a menu

90. Sign off

Selection or command

==> 6

F3=Exit

F4=Prompt

F9=Retrieve

F12=Previous

F13=User support

F23=Set initial menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 245. AS/400 Main Screen

Select option 6 in Figure 245 to go to the Communications screen.

CMN	Communications	System: RALYAS4B
-----	----------------	------------------

Select one of the following:

1. Communication status
2. Messages
3. Remote jobs
4. Configure communications
5. Network management
6. Network configuration
7. Verify communications
8. Send or receive files
9. Jobs

70. Related commands

Selection or command
==> 1

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 246. Communications Screen

Select option 1 in Figure 246 to communications status.

CMNSTS	Communications Status	System: RALYAS4B
--------	-----------------------	------------------

Select one of the following:

1. Work with line status
2. Work with controller status
3. Work with device status

70. Related commands

Selection or command
==> 1

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 247. Communications Status Screen

Select option 1 in Figure 247 to work with line status.

WRKCFGSTS	Work with Configuration Status
-----------	--------------------------------

Type choices, press Enter.

Type	> *LIN	*LIN, *CTL, *DEV
Configuration description . . .	> l3ltr	Name, generic*, *ALL, *CMN...

F3=Exit F4=List F5=Refresh F11=Keywords F12=Previous
F13=How to use this display

Figure 248. Work with Communications Status Screen

Type the line description name in Figure 248 to work with line status.

```

Work with Configuration Status
System: RALYAS4B
Position to . . . . . Starting character(s)
Type options, press Enter.
  1=Vary on  2=Vary off  3=Hold device  4=End recovery  5=Work with job
  6=Release device  7=Resume recovery
Opt Lin/Ctl/Dev/Mod Status -----Job-----
  1  L31TR          VARIED OFF
More...

Parameters for options 1, 2, 3 or command
==>
F3=Exit  F4=Prompt  F5=Refresh  F9=Retrieve  F12=Previous
F14=Work with lines
(C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 249. Work with Communications Status Screen

Select option 1 in Figure 249 to vary on the line.

```

CMNSTS Communications Status
System: RALYAS4B
Select one of the following:
  1. Work with line status
  2. Work with controller status
  3. Work with device status
  70. Related commands
Selection or command
==> 2
F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu
(C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 250. Communications Status Screen

Select option 2 in Figure 250 to work with controller status.

```

Work with Configuration Status
System: RALYAS4B
Position to . . . . . Starting character(s)
Type options, press Enter.
  1=Vary on  2=Vary off  3=Hold device  4=End recovery  5=Work with job
  6=Release device  7=Resume recovery
Opt Lin/Ctl/Dev/Mod Status -----Job-----
  1  TRNAS400A      VARIED OFF
More...

Parameters for options 1, 2, 3 or command
==>
F3=Exit  F4=Prompt  F5=Refresh  F9=Retrieve  F12=Previous
F14=Work with lines
(C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 251. Work with Communications Status Screen

Select option 1 in Figure 251 to vary on the controller.

Work with Configuration Status				System: RALYAS4B
Position to		Starting character(s)		
Type options, press Enter.				
1-Vary on		2-Vary off	3-Hold device	4-End recovery
6-Release device		5-Work with job		
		7-Resume recovery		
Opt	Lin/Ctl/Dev/Mod	Status	-----Job-----	
	L31TR	ACTIVE		
	TRNAS400A	ACTIVE	More...	
	RALYAS4A	ACTIVE		
Parameters for options 1, 2, 3 or command				
==>				
F3=Exit	F4=Prompt	F5=Refresh	F9=Retrieve	F12=Previous
F14=Work with lines				
(C) COPYRIGHT IBM CORP. 1988, 1988.				

Figure 252. Work with Communications Status Screen

If you select F5 to refresh the screen in Figure 249 on page 191 the token-ring line is ACTIVE and the controller is VARIED ON. Because we specified CP-CP session support and APPN *YES the device descriptions are automatically created, attached to the right controller and varied on. The refreshed screen is shown in Figure 252.

6.11 Activating Communications on the S/370 Host for the PS/2 and AS/400A

```
NCCF      N E T V I E W      RABAN WTCR21    05/31/89 16:38:30
* RABAN   V NET,ACT,ID=RAOL0020  ←-----
RABAN     IST097I VARY    ACCEPTED
RABAN     IST093I RAOL0020 ACTIVE
C RABAN   ►AOPNLIST RAOL0020 NONE
RABAN     IST097I DISPLAY  ACCEPTED
```

Figure 253. Activate Line for AS/400A and PS/2

AS/400A and PS/2 are T2.1 nodes connected off the same line from the S/370 host. Therefore to vary on the line we should issue the VTAM command "V NET,ACT,ID=RAOL0020".

```
NCCF      N E T V I E W      RABAN WTCR21    05/31/89 16:39:12
* RABAN   V NET,ACT,ID=RAOP1B,SCOPE=ALL ←-----
RABAN     IST097I VARY    ACCEPTED
RABAN     IST093I RAOP1B  ACTIVE
C RABAN   ►AOPNLIST RAOP1B NONE
RABAN     IST097I DISPLAY  ACCEPTED
```

Figure 254. Activate PU for the AS/400A

To vary on AS/400A PU enter the VTAM command "V NET,ACT,ID=RAOP1B,SCOPE=ALL".

```
NCCF      N E T V I E W      RABAN WTCR21    05/31/89 16:39:38
* RABAN   V NET,ACT,ID=RAOP5C,SCOPE=ALL ←-----
RABAN     IST097I VARY    ACCEPTED
RABAN     IST093I RAOP5C  ACTIVE
C RABAN   ►AOPNLIST RAOP5C NONE
RABAN     IST097I DISPLAY  ACCEPTED
```

Figure 255. Activate PU for the PS/2

To vary on the PS/2 PU enter the VTAM command "V NET,ACT,ID=RAOP5C,SCOPE=ALL".

```

NCCF      N E T V I E W      RABAN WTCR21    05/31/89 16:40:02
C RABAN   DISPLAY NET,ID=RAOP1B,SCOPE=ALL
RABAN     IST097I DISPLAY ACCEPTED
' RABAN
IST075I   NAME = RAOP1B      , TYPE = PU_T2.1  <-----
IST486I   STATUS= ACTIV      , DESIRED STATE= ACTIV
IST081I   LINE NAME = RAOL0020, LINE GROUP = RAOGSFLO, MAJNOD = RAONCP1
IST654I   I/O TRACE = OFF, BUFFER TRACE = OFF
IST355I   LOGICAL UNITS:
IST080I   RAOTNNB0 ACT/S      RAOTNNB1 ACTIV      RAOTNNB2 ACT/S
IST080I   RAOTNNB3 ACTIV      RAOTNNB4 ACTIV      RAOTNNB5 ACTIV
IST080I   RAOT1B01 ACTIV      RAOT1B02 ACTIV      RAOT1B03 ACTIV
IST080I   RAOT1B04 ACTIV      RAOT1B05 ACTIV      RAOT1B06 ACTIV
IST080I   RAOT1B07 ACTIV      RAOT1B08 ACTIV      RAOT1B09 ACTIV
IST080I   RAOT1B0A ACTIV      RAOT1B0B NEVAC      RAOT1B0C NEVAC
IST080I   RAOT1B0D NEVAC      RAOT1B0E ACTIV      RAOT1B0F ACTIV
IST080I   RAOT1B0G ACTIV      RAOT1B0H ACTIV      RAOT1B0I ACTIV
IST080I   RAOT1B0J ACTIV
IST314I   END

```

Figure 256. Display Status of the PU for the AS/400A

Figure 256 displays the status of the PU for AS/400A. Notice that the PU is seen as a T2.1 after activation and RAOTNNB0 (AS/400A) and RAOTNNB2 (AS/400B) are active and in session.

```

NCCF      N E T V I E W      RABAN WTCR21    05/31/89 16:40:23
C RABAN   DISPLAY NET,ID=RAOP5C,SCOPE=ALL
RABAN     IST097I DISPLAY ACCEPTED
' RABAN
IST075I   NAME = RAOP5C      , TYPE = PU_T2.1  <-----
IST486I   STATUS= ACTIV      , DESIRED STATE= ACTIV
IST081I   LINE NAME = RAOL0020, LINE GROUP = RAOGSFLO, MAJNOD = RAONCP1
IST654I   I/O TRACE = OFF, BUFFER TRACE = OFF
IST355I   LOGICAL UNITS:
IST080I   RAOTPSC0 ACT/S
IST314I   END

```

Figure 257. Display Status of the PU for the PS/2

Figure 257 displays the status of the PU for the PS/2. Notice that the PU is seen as a T2.1 after activation and RAOTPSC0 (PS/2) is active and in session.

```

C RABAN    DISPLAY NET,ID=RAOTNNB0,SCOPE=ALL
RABAN      IST097I  DISPLAY  ACCEPTED
' RABAN
IST075I    NAME = RAOTNNB0          , TYPE = LOGICAL UNIT
IST486I    STATUS= ACT/S           , DESIRED STATE= ACTIV
IST861I    MODETAB=MTGS3X  USSTAB=***NA*** LOGTAB=***NA***
IST934I    DLOGMOD=MODS361
IST597I    CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST081I    LINE NAME = RAOL0020, LINE GROUP = RAOGSFLO, MAJNOD = RAONCP1
IST135I    PHYSICAL UNIT = RAOP1B
IST082I    DEVTYPE = INDEPENDENT LU
IST654I    I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I    ACTIVE SESSIONS = 0000000004, SESSION REQUESTS = 0000000000
IST206I    SESSIONS:
IST634I    NAME      STATUS      SID      SEND RECV VR TP NETID
IST635I    RAOTPSC0  ACTIV-P     CF0384B97DD52DB4      0 0 USIBMRA
IST635I    RAOTPSC0  ACTIV-P     CF0384B97DD52DB8      0 0 USIBMRA
IST635I    RAOTPSC0  ACTIV-P     CF0384B97DD52DB9      0 0 USIBMRA
IST635I    RAOTPSC0  ACTIV-P     CF0384B97DD52DBB      0 0 USIBMRA
IST314I    END

```

Figure 258. Display Status of the LU for the AS/400A

Figure 258 displays the status of the LU for AS/400A. Notice the new device type of "independent LU". VTAM recognizes that it is an independent LU because of the LOCADDR=00 in the NCP major node.

If you look at IST635I you will see that this AS/400 LU (RAOTNNB0) has an active session with the PS/2 LU (RAOTPSC0) and in this case the PS/2 is the primary LU.

```

NCCF      N E T V I E W          RABAN WTCR21    06/10/89 11:05:30
C RABAN    DISPLAY NET,ID=RAOTNNB2,SCOPE=ALL
RABAN      IST097I  DISPLAY  ACCEPTED
' RABAN
IST075I    NAME = RAOTNNB2          , TYPE = LOGICAL UNIT
IST486I    STATUS= ACT/S           , DESIRED STATE= ACTIV
IST861I    MODETAB=MTGS3X  USSTAB=***NA*** LOGTAB=***NA***
IST934I    DLOGMOD=MODS361
IST597I    CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST081I    LINE NAME = RAOL0020, LINE GROUP = RAOGSFLO, MAJNOD = RAONCP1
IST135I    PHYSICAL UNIT = RAOP1B
IST082I    DEVTYPE = INDEPENDENT LU
IST654I    I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I    ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000000
IST206I    SESSIONS:
IST634I    NAME      STATUS      SID      SEND RECV VR TP NETID
IST635I    RAOTPSC0  ACTIV-P     CF0384B97DD52DB6      0 0 USIBMRA
IST635I    RAOTPSC0  ACTIV-P     CF0384B97DD52DBC      0 0 USIBMRA
IST314I    END

```

Figure 259. Display Status of the LU for the AS/400

Figure 259 displays the status of the LU for AS/400B. Notice the new device type of "independent LU". VTAM recognizes that it is an independent LU because of the LOCADDR=00 in the NCP major node.

If you look at IST635I you will see that this AS/400 LU (RAOTNNB2) has an active session with the PS/2 LU (RAOTPSC0) and in this case the PS/2 is the primary LU.


```

NCCF      N E T V I E W      RABAN WTCR21    06/10/89 11:06:16
C RABAN   DISPLAY NET,ID=RAOTPSC0,SCOPE=ALL
RABAN     IST097I  DISPLAY  ACCEPTED
' RABAN

IST075I  NAME = RAOTPSC0      , TYPE = LOGICAL UNIT
IST486I  STATUS= ACT/S      , DESIRED STATE= ACTIV
IST861I  MODETAB=MTGS3X  USSTAB=***NA*** LOGTAB=***NA***
IST934I  DLOGMOD=MODS361
IST597I  CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST081I  LINE NAME = RAOL0020, LINE GROUP = RAOGSFLO, MAJNOD = RAONCP1
IST135I  PHYSICAL UNIT = RAOP5C
IST082I  DEVTYPE = INDEPENDENT LU
IST654I  I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I  ACTIVE SESSIONS = 0000000006, SESSION REQUESTS = 0000000000
IST206I  SESSIONS:
IST634I  NAME      STATUS      SID      SEND RECV VR TP NETID
IST635I  RAOTNNB0  ACTIV-S     CF0384B97DD52DB4      0 0 USIBMRA
IST635I  RAOTNNB2  ACTIV-S     CF0384B97DD52DB6      0 0 USIBMRA
IST635I  RAOTNNB0  ACTIV-S     CF0384B97DD52DB8      0 0 USIBMRA
IST635I  RAOTNNB0  ACTIV-S     CF0384B97DD52DB9      0 0 USIBMRA
IST635I  RAOTNNB0  ACTIV-S     CF0384B97DD52DBB      0 0 USIBMRA
IST635I  RAOTNNB2  ACTIV-S     CF0384B97DD52DBC      0 0 USIBMRA
IST314I  END

```

Figure 260. Display Status of the LU for the PS/2

Figure 260 displays the status of the LU for the PS/2. Notice the new device type of "independent LU". VTAM recognizes that it is an independent LU because of the LOCADDR=00 in the NCP major node.

If you look at IST635I you will see that this PS/2 LU (RAOTPSC0) has an active sessions with both AS/400A (RAOTNNB0) and AS/400B (RAOTNNB2) in this case the AS/400's are the secondary LUs.

6.12 Trace from AS/400A to Host

The following traces were taken on AS/400A using the trace facility. This trace displays both the XID3 exchanges and the BIND exchanges between AS/400A and the host.

COMMUNICATIONS TRACE									
Title: AS/400A TO HOST									
07/09/89 01:36:51									
Page: 1									
Trace Description : AS/400A TO HOST									
Line name : L24020									
Line protocol : SDLC									
Start Date/Time : 07/09/89 01:31:11									
End Date/Time : 07/09/89 01:36:45									
Buffer size : 3 1=128K, 2=256K, 3=2048K									
Data direction : 3 1=Sent, 2=Received, 3=Both									
Stop on buffer full : N Y=Yes, N=No									
Format SNA data only : N Y=Yes, N=No									
Format RR, RNR commands : N Y=Yes, N=No									
Record Number : Number of record in trace buffer (decimal)									
S/R : S=Sent R=Received M=Modem Change									
Data Length : Amount of data in record (decimal)									
Record Timer : Time stamp (100 millisecond resolution, hexadecimal)									
Record Status : Status of record									
Controller name : Name of controller associated with record									
Command : Command/Response information									
Number sent : Count of records sent									
Number received : Count of records received									
Poll/Final : ON=Poll for Commands, Final for Responses									
Commands/Responses:									

I	Information								
RR	Receive Ready								
RNR	Receive Not Ready								
REJ	Reject								
UI	Unnumbered Information								
SNRM	Set Normal Response Mode								
DISC	Disconnect/Request Disconnect								
TEST	Test								
SIM	Set Initialization Mode								
UP	Unnumbered Poll								
FRMR	Frame Reject								
CFGR	Configure								
DM	Disconnected Mode								
XID	Exchange ID								
BCN	Beacon								
SNRME	Set Normal Response Mode Extended								
UA	Unnumbered Acknowledgment								
*****	Invalid Command/Response								
COMMUNICATIONS TRACE									
Title: AS/400A TO HOST									
07/09/89 01:36:51									
Page: 3									
Record Number	S/R	Data Length	Record Status	Record Timer	Data Type	Controller Name/Number	Command	Number Sent	Poll/Number Received Final
4	R	0	00000000	1551		/C4 XID			ON
5	S	84	00000000	1552		/C4 XID			ON
			Data			32540561507800000004C000000000001010B00000209000000007000E			*.../&.....{.....*
						11F4E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C10E09F7C1C1C1C1C1C4F410			*.4USIBMRA.RALYAS4A..7AAAAAAD4.*
						17F1161101130011F9F4F0F6C2F5F0F1F0F0F0F1F5F0F7F8			*.1.....9406B50100015078*
10	R	119	00000000	1582		/C4 XID			ON
			Data			3477FFFFFDD00001084400000000000010B1000105A000000007000E			*.....D!.....*
						0CF4E4E2C9C2D4D9C14BD9C1C20E08F1D9C1D6D5C3D7F10E07F7D9C1D6D7			*.4USIBMRA.RAB..1RAONCP1..7RAOP*
						F1C2103700161101130011F3F7F2F5F0F0F0F0F0F0F0F1F8F2F5201104			*1B.....3725000000001825....*
						0E02F5F6F6F8F5F4F0F1F3F0F00804F0F4F0F3F0F007090901511507			*.566885401300..040300..I....*
11	S	84	00000000	1583		/C4 XID			ON
			Data			32540561507800000004C000000000001010B00000209000000007000E			*.../&.....{.....*
						11F4E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C10E09F7C1C1C1C1C1C4F410			*.4USIBMRA.RALYAS4A..7AAAAAAD4.*
						17F1161101130011F9F4F0F6C2F5F0F1F0F0F0F1F5F0F7F8			*.1.....9406B50100015078*
16	R	0	00000000	1580		/C4 SNRM			ON
17	S	0	00000000	1581		/C4 UA			ON

Figure 261. AS/400A to Host XID3 Exchanges

```

COMMUNICATIONS TRACE      Title: AS/400A TO HOST      07/09/89 01:39:03      Page: 1
Trace Description . . . . : AS/400A TO HOST
Line name . . . . . : L24020
Line protocol . . . . . : SDLC
Start Date/Time . . . . : 07/09/89 01:31:11
End Date/Time . . . . . : 07/09/89 01:36:45
Bytes collected . . . . . : 19386
Buffer size . . . . . : 3      1=128K, 2=256K, 3=2048K
Data direction . . . . . : 3      1=Sent, 2=Received, 3=Both
Stop on buffer full . . . : N      Y=Yes, N=No
Format SNA data only . . . : Y      Y=Yes, N=No
Format RR, RNR commands . : N      Y=Yes, N=No
Controller Name . . . . . : *ALL      *ALL, name
COMMUNICATIONS TRACE      Title: AS/400A TO HOST      07/09/89 01:39:03      Page: 2

Record Number . . . . . Number of record in trace buffer (decimal)
S/R . . . . . S=Sent R=Received M=Modem Change
Controller name . . . . . Name of Controller associated with record
SNA Data . . . . . TH, RH and RU for record
TH . . . . . Transmission Header
RH . . . . . Request/Response Header
RU . . . . . Request/Response Unit
TH Parameter Descriptions:
FID . . . . . Format Identification
MPF . . . . . Mapping Field (segment of Basic Information
Unit (BIU) - ONLY, FIRST, MIDDLE, LAST)
OAF . . . . . Origination Address Field
DAF . . . . . Destination Address Field
SNF . . . . . Sequence Number Field
DCF . . . . . Data Count Field
LA . . . . . Local Address
ODAI . . . . . OAF-DAF Assignor Indicator
EFI . . . . . Expedited Flow Indicator
LU . . . . . Logical Unit
SSCP . . . . . System Services Control Point
PU . . . . . Physical Unit
RH Parameter Descriptions:
REQ . . . . . Request
RSP . . . . . Response
RH Category Descriptions:
NC . . . . . Network Control
SC . . . . . Session Control
DFC . . . . . Data Flow Control
NC . . . . . Network Control
FMD . . . . . Function Management Data
FMH . . . . . Function Management Header
RH Indicators:
FI . . . . . Format Indicator
SDI . . . . . Sense Data Included Indicator
BCI . . . . . Begin Chain Indicator
ECI . . . . . End Chain Indicator
DR1 . . . . . Definite Response 1 Indicator
DR2 . . . . . Definite Response 2 Indicator
ERI . . . . . Exception Response Indicator
RTI . . . . . Response Type Indicator
QRI . . . . . Queued Response Indicator
EBI . . . . . End Bracket Indicator
CDI . . . . . Change Direction Indicator
PI . . . . . Pacing Indicator
BBI . . . . . Begin Bracket Indicator
CSI . . . . . Code Selection Indicator
EDI . . . . . Enciphered Data Indicator
PDI . . . . . Padded Data Indicator
CEBI . . . . . Conditional End Bracket Indicator
RLWI . . . . . Request Larger Window Indicator

```

Figure 262. AS/400A to Host BIND Exchanges

COMMUNICATIONS TRACE				Title: AS/400A TO HOST	07/09/89 01:39:03	Page: 3
Record Number	S/R	Controller Name	Data Type	SNA Data: TH, RH, RU		
22	R	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=00, SNF'=0283, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
			RU Command	ACTPU		
			RU Data	110201050000000000 *.....		
28	S	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=00, SNF'=0283, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
			RU Command	ACTPU		
			RU Data	11114040404040404000000701000000000000 *..		
228	R	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0000, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
			RU Command	BIND		
			RU Data	31001307B0B051B300878585870006020000000000001023000010E4E2 *.....GEEG.....US* C9C2D04D9C14BD9C1D6E3D7E2C3F01D000902E2D5C1E2E5C3D4C71104E4E2 *IBMRA.RAOTPC0....SNASVCMG...US* C9C2D04D9C14BD9C1D6E3D7E2C3F00010E4E2C9C2D04D9C14BD9C1D6E3D5D5 *IBMRA.RAOTPC0..USIBMRA.RAOTNN* C2F02C8A0108404040404040406014CF0384B97DD52DB10BE4E2C9C2D4 *B0....-...D.'N...USIBM* D9C14BD9C1C2 *RA.RAB		
234	S	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=0000, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
			RU Command	BIND		
			RU Data	31001307B0B051B300808585800006020000000000001023000001D00 *.....EE.....* 0902E2D5C1E2E5C3D4C71105E4E2C9C2D04D9C14BD9C1D6E3D5D5C2F00000 *..SNASVCMG..USIBMRA.RAOTNNB0..* 2C0A0108404040404040406014CF0384B97DD52DB10BE4E2C9C2D04D9C1 *....-...D.'N...USIBMRA* 4BD9C1C2 *RAB		
238	R	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=00, SNF'=0001 RH : ('0B8000'X) REQ FMD, FI, BCI, ECI, DR1		
			RU Command	NMVT		
			RU Data	41038D000000000000021808004928001994ED00EC000000010000000000 *.....KH..M.....* 000004000A001400320064 *		
239	R	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0001 RH : ('0A9100'X) REQ FMD, FI, BCI, DR1, ERI, PI		
			RU Command			
			RU Data	180502FF0003D000000206F1090802D9E4E2E2C5D3D30000 *.....}....1...RUSSELL..		
241	S	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=00, SNF'=0001 RH : ('8F9000'X) RSP FMD, FI, SDI, DR1, RTI Sense Code . . . : 00060000,		
			RU Command	NMVT		
			RU Data	41038D *...		
246	S	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
			RU Data	000007 *...		
248	R	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0002 RH : ('019520'X) REQ FMD, ECI, DR1, ERI, RLWI, PI, CDI		
			RU Data	0018121002000000000020002000000007D8D7C3E2E4D7D7 *.....QPCSUPP		
252	S	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
			RU Data	00000E *...		
253	S	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=0001 RH : ('039501'X) REQ FMD, BCI, ECI, DR1, ERI, RLWI, PI, CEBI		
			RU Data	001812100A000000000020002000000007D8D7C3E2E4D7D7 *.....QPCSUPP		
255	R	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
			RU Data	000008 *...		
256	R	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0000, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
			RU Command	UNBIND		
			RU Data	320F00000000014CF0384B97DD52DB10BE4E2C9C2D04D9C14BD9C1C2 *.....-...D.'N...USIBMRA.RAB		
260	S	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=0000, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
			RU Command	UNBIND		
			RU Data	32 *		

Figure 263. AS/400A to Host BIND Exchanges

```

264 R P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0000, EFI
RU Command . . . . : BIND
RU Data . . . . : 31001307B08051B3008785858700060200000000000001023000010E4E2 *.....GEEG.....US*
C9C2D4D9C14BD9C1D6E3D7E2C3F01D000902E2D5C1E2E5C3D4C71104E4E2 *IBMRA.RAOTPC0....SNASVCMG..US*
C9C2D4D9C14BD9C1D6E3D7E2C3F00010E4E2C9C2D4D9C14BD9C1D6E3D5D5 *IBMRA.RAOTPC0..USIBMRA.RAOTNN*
C2F22C0A01084040404040406014CF0384B97DD52DB30BE4E2C9C2D4 *B2.... -...D.'N...USIBM*
D9C14BD9C1C2 *RA.RAB
284 S P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=0000, EFI
RU Command . . . . : BIND
RU Data . . . . : 31001307B08051B3008085858000060200000000000001023000001D00 *.....EE.....*
0902E2D5C1E2E5C3D4C71105E4E2C9C2D4D9C14BD9C1D6E3D5C2F20000 *..SNASVCMG..USIBMRA.RAOTNNB2.*
2C0A0108404040404040406014CF0384B97DD52DB30BE4E2C9C2D4D9C1 *.... -...D.'N...USIBMRA*
4BD9C1C22B2F0202164614800110E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C1 *RAB.....USIBMRA.RALYASAA*
174615800110E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C200 *.....USIBMRA.RALYAS4B.*
288 R P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0001
RU Command . . . . : BIND
RU Data . . . . : 180502FF0003D000000206F1090802D9E4E2E2C5D3D30000 *.....)....1...RUSSELL..
292 S P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=0000, EFI
RU Command . . . . : BIND
RU Data . . . . : 000007 *...
294 R P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0002
RU Command . . . . : BIND
RU Data . . . . : 00181210020000000002000200000007D8D7C3E2E4D7D7 *.....QPCSUPP
298 S P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=0000, EFI
RU Command . . . . : BIND
RU Data . . . . : 000008 *...
303 S P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=0001
RU Command . . . . : BIND
RU Data . . . . : 001812100A0000000002000200000007D8D7C3E2E4D7D7 *.....QPCSUPP
305 R P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0000, EFI
RU Command . . . . : BIND
RU Data . . . . : 000008 *...
306 R P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0000, EFI
RU Command . . . . : UNBIND
RU Data . . . . : 320F000000000014CF0384B97DD52DB30BE4E2C9C2D4D9C14BD9C1C2 *.....-...D.'N...USIBMRA.RAB
310 S P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=0000, EFI
RU Command . . . . : UNBIND
RU Data . . . . : 32 *
314 R P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0000, EFI
RU Command . . . . : BIND
RU Data . . . . : 31001307B08051B3008786868700060200000000000001023000010E4E2 *.....GFFG.....US*
C9C2D4D9C14BD9C1D6E3D7E2C3F01C000802D8D7C3E2E4D7D71104E4E2C9 *IBMRA.RAOTPC0....QPCSUPP..USI*
C2D4D9C14BD9C1D6E3D7E2C3F00010E4E2C9C2D4D9C14BD9C1D6E3D5D5C2 *BMRA.RAOTPC0..USIBMRA.RAOTNNB*
F02C0A01084040404040406014CF0384B97DD52DB40BE4E2C9C2D4D9 *0.... -...D.'N...USIMBR*
C14BD9C1C2 *A.RAB
318 S P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=0000, EFI
RU Command . . . . : BIND
RU Data . . . . : 31001307B08051B3008086868000060200000000000001023000001C00 *.....FF.....*
0802D8D7C3E2E4D7D71105E4E2C9C2D4D9C14BD9C1D6E3D5D5C2F000002C *..QPCSUPP..USIBMRA.RAOTNNB0...*
0A0108404040404040406014CF0384B97DD52DB40BE4E2C9C2D4D9C14B *.... -...D.'N...USIBMRA.*
D9C1C2 *RAB
322 R P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0001
RU Command . . . . : BIND
RU Data . . . . : 230502FF0003D000000430F0F1F9120802D9E4E2E2C5D3D30001D9E4E2E2 *.....)....019...RUSSELL..RUSS*
C5D3D30000 *ELL..
330 S P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=0000, EFI
RU Command . . . . : BIND
RU Data . . . . : 000007 *...
332 R P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0002
RU Command . . . . : BIND
RU Data . . . . : 002BD00100010025104100071147D8D7C30006116DC6E200141404141900 *..}.....QPC..._FS.....*
02145700021463000214650002 *.....
336 S P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=0000, EFI
RU Command . . . . : BIND
RU Data . . . . : 00000E *...

```

Figure 264. AS/400A to Host BIND Exchanges

COMMUNICATIONS TRACE				Title: AS/400A TO HOST	07/09/89 01:39:03	Page: 6
Record Number	S/R	Controller Name	Data Type	SNA Data: TH, RH, RU		
341	S	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=0001 RH : ('039520'X) REQ FMD, BCI, ECI, DR1, ERI, RLWI, PI, CDI RU Data : 0031D00030001002B144300071147D8C1E2000C116DD9C1D3E8C1E2F4C100 *..).....QAS..._RALYAS4A.* 14140414650002146300021419000214570002 *.....*		
343	R	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI RU Data : 000008 *...*		
346	R	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0003 RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI RU Data : 0013D0010001000D104F000911656140C604E2 *..).....|.... / FMS		
352	S	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=0002 RH : ('039120'X) REQ FMD, BCI, ECI, DR1, ERI, PI, CDI RU Data : 001000020001000A124B000611490000 *..).....*		
354	R	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI RU Data : 000040 *..*		
357	R	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0004 RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI RU Data : 001AD00100010014104F0010116561D8C9E6E2C6D3D940C6D4E2 *..).....|.... / QIWSFLR FMS		
363	S	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=0003 RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI RU Data : 001000020001000A124B000611490000 *..).....*		
371	R	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=02, SNF'=0000, EFI RH : ('6B0000'X) REQ SC, FI, BCI, ECI, DR1 RU Command : BIND RU Data : 31001307B00051B3000806868700060200000000000001023000010E4E2 *.....GFFG.....US* C9C2D4D9C14BD9C1D6E3D7E2C3F01C000802D0D7C3E2E4D7D71104E4E2C9 *IBMRA.RAOTPSC0...QPSCSUPP...USI* C2D4D9C14BD9C1D6E3D7E2C3F00010E4E2C9C2D4D9C14BD9C1D6E3D5D5C2 *BMRA.RAOTPSC0...USIBMRA.RAOTNNB* F22C0A0108404040404040406014CF0384B97DD52D8608E4E2C9C2D4D9 *2....-...D.'N...USIBMRA* C14BD9C1C2 *A.RAB		
377	S	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=01, SNF'=0000, EFI RH : ('EB8000'X) RSP SC, FI, DR1 RU Command : BIND RU Data : 31001307B00051B3000806868000060200000000000001023000001C00 *.....FF.....*		
381	R	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=02, SNF'=0001 RH : ('0A9100'X) REQ FMD, FI, BCI, DR1, ERI, PI RU Command : FMH- 5=230502FF0003D0000000430F0F1F9120002D9E4E2E2C5D3D3 *.....}....019...RUSSELL 0001D9E4E2E2C5D3D30000 *..RUSSELL...*		
385	S	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=01, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI RU Data : 000007 *...*		
387	R	P240200	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=02, SNF'=0002 RH : ('019520'X) REQ FMD, ECI, DR1, ERI, RLWI, PI, CDI RU Data : 002BD00100010025104100071147D8D7C30006116DC6E200141404141900 *..).....QPC..._FS.....* 02145700021463000214650002 *.....*		

Figure 265. AS/400A to Host BIND Exchanges

COMMUNICATIONS TRACE				Title: AS/400A TO HOST	07/09/89 01:39:03	Page: 7
Record Number	S/R	Controller Name	Data Type	SNA Data: TH, RH, RU		
393	S	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=01, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
		RU Data		000008 *... *		
402	S	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=01, SNF'=0001 RH : ('039520'X) REQ FMD, BCI, ECI, DR1, ERI, RLWI, PI, CDI		
		RU Data		0031D0030001002B144300071147D8C1E2000C116DD9C1D3E8C1E2F4C200 *... QAS... RALYAS4B.* 14140414650002146300021419000214570002 *... *		
404	R	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=02, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
		RU Data		000008 *... *		
407	R	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=02, SNF'=0003 RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI		
		RU Data		0013D0010001000D104F000911656140C6D4E2 *... |.../ FMS *		
417	S	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=01, SNF'=0002 RH : ('039120'X) REQ FMD, BCI, ECI, DR1, ERI, PI, CDI		
		RU Data		0010D0020001000A124B000611490000 *... *		
419	R	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=02, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
		RU Data		000040 *... *		
422	R	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=02, SNF'=0004 RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI		
		RU Data		001AD00100010014104F0010116561D8C9E6E2C6D3D940C6D4E2 *... |.../QIWSFLR FMS *		
428	S	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=01, SNF'=0003 RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI		
		RU Data		0010D0020001000A124B000611490000 *... *		
436	R	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=02, SNF'=0005 RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI		
		RU Data		0039D001000100331009001B110E61D8C9E6E2C6D3D961E4D7C4C1E3C54B *... /QIWSFLR/UPDATE.* D7C3E240C6D4E200141102113A110811661194113211331110110E *PCS FMS.....M..... *		
442	S	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=00, SNF'=0004 RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI		
		RU Data		0054D0030001004E14240012113AF1F9F8F8F1F0F2F8F0F9F2F6F0F00008 *... +.....19881028092600...* 11080000002900051166F100051194F100051132F000051133F000061110 *.....1....M1....0....0....* 14650016110ED8C9E6E2C6D3D961E4D7C4C1E3C54BD7C3E2 *.....QIWSFLR/UPDATE.PCS *		
450	R	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=02, SNF'=0000, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
		RU Command		BIND		
		RU Data		31001307B0B051B30087868687000602000000000000001023000010E4E2 *.....GFFG.....US* C9C2D4D9C14BD9C1D6E3D7E2C3F01C000802D8D7C3E2E4D7D71104E4E2C9 *IBMRA.RAOTPC0....QPCSUPP..USI* C2D4D9C14BD9C1D6E3D7E2C3F00010E4E2C9C2D4D9C14BD9C1D6E3D5D5C2 *BMRA.RAOTPC0..USIBMRA.RAOTNNB* F02C0A010840404040404040406014CF0384B97DD52DB80BE4E2C9C2D4D9 *0.... -...D.'N...USIBMRA* C14BD9C1C2 *A.RAB *		
454	S	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=02, SNF'=0000, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
		RU Command		BIND		
		RU Data		31001307B0B051B3008086868000602000000000000010230000001C00 *.....FF.....* 0802D8D7C3E2E4D7D71105E4E2C9C2D4D9C14BD9C1D6E3D5D5C2F000002C *..QPCSUPP..USIBMRA.RAOTNNB0...* 0A010840404040404040406014CF0384B97DD52DB80BE4E2C9C2D4D9C14B *... -...D.'N...USIBMRA.*		

Figure 266. AS/400A to Host BIND Exchanges

6.13 Trace from AS/400A to AS/400B

The following traces were taken on AS/400A using the trace facility. This trace displays both the XID3 exchanges and the BIND exchanges between AS/400A and AS/400B.

COMMUNICATIONS TRACE										Title: AS/400A TO AS/400B		07/09/89 01:39:36		Page: 1	
Trace Description										AS/400A TO AS/400B					
Line name										L41TR					
Line protocol										TRLAN					
Start Date/Time										07/09/89 01:31:05					
End Date/Time										07/09/89 01:39:33					
Bytes collected										11958					
Buffer size										3 1=128K, 2=256K, 3=2048K					
Data direction										3 1=Sent, 2=Received, 3=Both					
Stop on buffer full										N Y=Yes, N=No					
Format SNA data only										N Y=Yes, N=No					
Format RR, RNR commands										N Y=Yes, N=No					
Controller Name										*ALL *ALL, name					
COMMUNICATIONS TRACE										Title: AS/400A TO AS/400B		07/09/89 01:39:36		Page: 2	
Record Number	S/R	Data Length	Record Timer	Data Type	Controller Name	Destination MAC Address	Source MAC Address	Frame Format	Command	Number Sent	Number Received	Page: Poll/Final	DSAP	SSAP	
1	R	9	7413			400010020001	C00010020002	LLC	TEST			OFF	00	00	
Routing Information										: 0270					
Data										: 000003E06000129D2A		*...W....		*	
2	S	9	7413			400010020002	C00010020001	LLC	TEST			OFF	00	01	
Routing Information										: 02F0					
Data										: 000003E06000129D2A		*...W....		*	
3	R	0	7418	EBCDIC	TRNAS400B	400010020001	400010020002	LLC	XID			OFF	04	04	
4	S	9	7456			400010020002	C00010020001	LLC	TEST			OFF	00	00	
Routing Information										: 0270					
Data										: 000014D2E80004F878		*...KY..8.		*	
5	R	9	7456			400010020001	C00010020002	LLC	TEST			OFF	00	01	
Routing Information										: 02F0					
Data										: 000014D2E80004F878		*...KY..8.		*	
6	S	0	7456	EBCDIC	TRNAS400B	400010020002	400010020001	LLC	XID			OFF	04	04	
7	R	84	7456			400010020001	400010020002	LLC	XID			OFF	04	05	
Data										: 32540561553300000000C0000000000001010B700007CA0000000007000E		*.../.....{.....}		*	
										11F4E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C20E09F7C1C1C1C1C1C2C110		*.4USIBMRA.RALYAS4B..7AAAAAABA.*		*	
										17F1161101130011F9F4F0F4C2F2F0F1F0F0F0F1F5F5F3F3		*.1.....9404B20100015533		*	
8	S	84	7456	EBCDIC	TRNAS400B	400010020002	400010020001	LLC	XID			OFF	04	04	
Data										: 32540561507800000000C0000000000001010B700007CA0000000007000E		*.../.....{.....}		*	
										11F4E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C10E09F7C1C1C1C1C1C4F310		*.4USIBMRA.RALYAS4A..7AAAAAAD3.*		*	
										17F1161101130011F9F4F0F6C2F5F0F1F0F0F0F1F5F0F7F8		*.1.....9406B50100015078		*	
9	R	84	7458			400010020001	400010020002	LLC	XID			OFF	04	05	
Data										: 32540561553300000000F4C0000000000001010B700007CA0000000007000E		*.../.....4{.....}		*	
										11F4E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C20E09F7C1C1C1C1C1C2C110		*.4USIBMRA.RALYAS4B..7AAAAAABA.*		*	
										17F1161101130011F9F4F0F4C2F2F0F1F0F0F0F1F5F5F3F3		*.1.....9404B20100015533		*	
10	S	84	7458	EBCDIC	TRNAS400B	400010020002	400010020001	LLC	XID			OFF	04	04	
Data										: 32540561507800000000F4C0000000000001010B400007CA0000000007000E		*.../.....4{.....}		*	
										11F4E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C10E09F7C1C1C1C1C1C4F310		*.4USIBMRA.RALYAS4A..7AAAAAAD3.*		*	
										17F1161101130011F9F4F0F6C2F5F0F1F0F0F0F1F5F0F7F8		*.1.....9406B50100015078		*	
11	R	84	7459			400010020001	400010020002	LLC	XID			OFF	04	05	
Data										: 32540561553300000000F4C0000000000001010B500007CA0000000007000E		*.../.....4{.....}		*	
										11F4E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C20E09F7C1C1C1C1C1C2C110		*.4USIBMRA.RALYAS4B..7AAAAAABA.*		*	
										17F1161101130011F9F4F0F4C2F2F0F1F0F0F0F1F5F5F3F3		*.1.....9404B20100015533		*	
12	S	84	7459	EBCDIC	TRNAS400B	400010020002	400010020001	LLC	XID			OFF	04	04	
Data										: 32540561507800000000F4C0000000000001010B400007CA0000000007000E		*.../.....4{.....}		*	
										11F4E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C10E09F7C1C1C1C1C1C4F310		*.4USIBMRA.RALYAS4A..7AAAAAAD3.*		*	
										17F1161101130011F9F4F0F6C2F5F0F1F0F0F0F1F5F0F7F8		*.1.....9406B50100015078		*	
13	R	0	745A	EBCDIC	TRNAS400B	400010020001	400010020002	LLC	SABME			OFF	04	04	
14	S	0	745A			400010020002	400010020001	LLC	UA			OFF	04	05	

Figure 267. AS/400A to AS/400B XID Exchanges


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COMMUNICATIONS TRACE      Title: AS/400A TO AS/400B      07/09/89 01:39:42      Page: 1
Trace Description . . . . : AS/400A TO AS/400B
Line name . . . . . : L41TR
Line protocol . . . . . : TRLAN
Start Date/Time . . . . : 07/09/89 01:31:05
End Date/Time . . . . . : 07/09/89 01:39:33
Bytes collected . . . . . : 11958
Buffer size . . . . . : 3      1=128K, 2=256K, 3=2048K
Data direction . . . . . : 3      1=Sent, 2=Received, 3=Both
Stop on buffer full . . . : N      Y=Yes, N=No
Format SNA data only . . . : Y      Y=Yes, N=No
Format RR, RNR commands . . : N      Y=Yes, N=No
Controller Name . . . . . : *ALL      *ALL, name
COMMUNICATIONS TRACE      Title: AS/400A TO AS/400B      07/09/89 01:39:42      Page: 2

Record Number . . . . . Number of record in trace buffer (decimal)
S/R . . . . . S=Sent R=Received M=Modem Change
Controller name . . . . . Name of Controller associated with record
SNA Data . . . . . TH, RH and RU for record
TH . . . . . Transmission Header
RH . . . . . Request/Response Header
RU . . . . . Request/Response Unit

TH Parameter Descriptions:
FID . . . . . Format Identification
MPF . . . . . Mapping Field (segment of Basic Information
                Unit (BIU) - ONLY, FIRST, MIDDLE, LAST)
OAF . . . . . Origination Address Field
DAF . . . . . Destination Address Field
SNF . . . . . Sequence Number Field
DCF . . . . . Data Count Field
LA . . . . . Local Address
ODAI . . . . . OAF-DAF Assignor Indicator
EFI . . . . . Expedited Flow Indicator
LU . . . . . Logical Unit
SSCP . . . . . System Services Control Point
PU . . . . . Physical Unit

RH Parameter Descriptions:
REQ . . . . . Request
RSP . . . . . Response

RH Category Descriptions:
NC . . . . . Network Control
SC . . . . . Session Control
DFC . . . . . Data Flow Control
NC . . . . . Network Control
FMD . . . . . Function Management Data
FMH . . . . . Function Management Header

RH Indicators:
FI . . . . . Format Indicator
SDI . . . . . Sense Data Included Indicator
BCI . . . . . Begin Chain Indicator
ECI . . . . . End Chain Indicator
DR1 . . . . . Definite Response 1 Indicator
DR2 . . . . . Definite Response 2 Indicator
ERI . . . . . Exception Response Indicator
RTI . . . . . Response Type Indicator
QRI . . . . . Queued Response Indicator
EBI . . . . . End Bracket Indicator
CDI . . . . . Change Direction Indicator
PI . . . . . Pacing Indicator
BBI . . . . . Begin Bracket Indicator
CSI . . . . . Code Selection Indicator
EDI . . . . . Enciphered Data Indicator
PDI . . . . . Padded Data Indicator
CEBI . . . . . Conditional End Bracket Indicator
RLWI . . . . . Request Larger Window Indicator

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Figure 268. AS/400A to AS/400B BIND Exchanges

COMMUNICATIONS TRACE				Title: AS/400A TO AS/400B	07/09/89 01:39:42	Page: 3
Record Number	S/R	Controller Name	Data Type	SNA Data: TH, RH, RU		
17	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0000, EFI RH : ('6B8100'X) REQ SC, FI, BCI, ECI, DR1, PI		
			RU Command	BIND		
			RU Data	31001307B0B051B30787868670706020000000000001023000010E4E2 *.....GFFG.....US* C9C2D4D9C14BD9C1D3E8C1E2F4C126000002C3D7E2E5C3D4C70903003330 *IBMRA.RALYAS4A....CPSVCMG.....* EAF900008F1104E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C10010E4E2C9C2D4 *..9.....USIBMRA.RALYAS4A..USIBM* D9C14BD9C1D3E8C1E2F4C26019CE773A1F55262F5410E4E2C9C2D4D9C14B *RA.RALYAS4B-.....USIBMRA.* D9C1D3E8C1E2F4C12C090407C3D7E2E5C3D4C7 *RALYAS4A....CPSVCMG		
19	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=01, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
			RU Data	000001 *...		
21	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=01, SNF'=0000, EFI RH : ('6B8100'X) REQ SC, FI, BCI, ECI, DR1, PI		
			RU Command	BIND		
			RU Data	31001307B0B051B30787868670706020000000000001023000010E4E2 *.....GFFG.....US* C9C2D4D9C14BD9C1D3E8C1E2F4C226000002C3D7E2E5C3D4C70903000F09 *IBMRA.RALYAS4B....CPSVCMG.....* 3CAE0000561104E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C20010E4E2C9C2D4 *.....USIBMRA.RALYAS4B..USIBM* D9C14BD9C1D3E8C1E2F4C16019CE773A2255262EFC10E4E2C9C2D4D9C14B *RA.RALYAS4A-.....USIBMRA.* D9C1D3E8C1E2F4C22C090407C3D7E2E5C3D4C7 *RALYAS4B....CPSVCMG		
23	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=00, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
			RU Data	000001 *...		
25	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0000, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
			RU Command	BIND		
			RU Data	31001307B0B051B3008086868000060200000000000010230000002600 *.....FF.....* 0802C3D7E2E5C3D4C70903000F093CAE0000561105E4E2C9C2D4D9C14BD9 *..CPSVCMG.....9.....USIBMRA.R* C1D3E8C1E2F4C200006019CE773A1F55262F5410E4E2C9C2D4D9C14BD9C1 *ALYAS4B-.....USIBMRA.RA* D3E8C1E2F4C12C090407C3D7E2E5C3D4C7 *LYAS4A....CPSVCMG		
26	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=01, SNF'=0000, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
			RU Command	BIND		
			RU Data	31001307B0B051B3008086868000060200000000000010230000002600 *.....FF.....* 0802C3D7E2E5C3D4C70903000F093CAE0000561105E4E2C9C2D4D9C14BD9 *..CPSVCMG.....USIBMRA.R* C1D3E8C1E2F4C100006019CE773A2255262EFC10E4E2C9C2D4D9C14BD9C1 *ALYAS4A-.....USIBMRA.RA* D3E8C1E2F4C22C090407C3D7E2E5C3D4C7 *LYAS4B....CPSVCMG		
29	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0001 RH : ('089520'X) REQ FMD, FI, BCI, ECI, DR1, ERI, RLWI, PI, CDI		
			RU Command	FMH- 5=110502FF0003D000000422F0F0F1000000 *.....}....001...		
			RU Data	000C12C10000000BF4800000 *...A....4...		
31	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=01, SNF'=0001 RH : ('0B9520'X) REQ FMD, FI, BCI, ECI, DR1, ERI, RLWI, PI, CDI		
			RU Command	FMH- 5=110502FF0003D000000422F0F0F1000000 *.....}....001...		
			RU Data	000C12C10000000CF4800000 *...A....4...		
32	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
			RU Data	000000 *...		

Figure 269. AS/400A to AS/400B BIND Exchanges

COMMUNICATIONS TRACE				Title: AS/400A TO AS/400B	07/09/89 01:39:42	Page: 4
Record Number	S/R	Controller Name	Data Type	SNA Data: TH, RH, RU		
35	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0001 RH : ('039501'X) REQ FMD, BCI, ECI, DR1, ERI, RLWI, PI, CEBI		
		RU Data	:	000C12C10000000CF4800000	*...A....4...	*
37	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
		RU Data	:	000000	*...	*
39	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=01, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
		RU Data	:	000000	*...	*
41	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=01, SNF'=0001 RH : ('039501'X) REQ FMD, BCI, ECI, DR1, ERI, RLWI, PI, CEBI		
		RU Data	:	000C12C10000000BF4800000	*...A....4...	*
42	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0002 RH : ('0B9181'X) REQ FMD, FI, BCI, ECI, DR1, ERI, PI, BBI, CEBI		
		RU Command	:	FMH- 5=110502FF0003D000000422F0F0F4000000	*.....}....004...	*
		RU Data	:	005C12C20A8000000010000000C154410E4E2C9C2D4D9C14BD9C1D3E8C1 E2F4C100000C450A80000000000003300174615800110E4E2C9C2D4D9C1 4BD9C1D3E8C1E2F4C200164700000010807600000000000000014C0000 8000	*.*.B.....USIBMRA.RALYA* *S4A.....USIBMRA* *.RALYAS4B.....<..*	*
45	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=01, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
		RU Data	:	000000	*...	*
47	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
		RU Data	:	000000	*...	*
49	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=01, SNF'=0002 RH : ('0B9181'X) REQ FMD, FI, BCI, ECI, DR1, ERI, PI, BBI, CEBI		
		RU Command	:	FMH- 5=110502FF0003D000000422F0F0F4000000	*.....}....004...	*
		RU Data	:	005C12C20A80000000F0000000B154410E4E2C9C2D4D9C14BD9C1D3E8C1 E2F4C200000C450A80000000000003300174615800110E4E2C9C2D4D9C1 4BD9C1D3E8C1E2F4C100164700000010807600000000000000014C0000 8000	*.*.B.....USIBMRA.RALYA* *S4B.....USIBMRA* *.RALYAS4A.....<..*	*
51	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=01, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
		RU Data	:	000000	*...	*
53	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0003 RH : ('0B9081'X) REQ FMD, FI, BCI, ECI, DR1, ERI, BBI, CEBI		
		RU Command	:	FMH- 5=110502FF0003D000000422F0F0F4000000	*.....}....004...	*
		RU Data	:	005C12C20A800000001100000010154410E4E2C9C2D4D9C14BD9C1D3E8C1 E2F4C200000C450A80000000000003300174615800110E4E2C9C2D4D9C1 4BD9C1D3E8C1E2F4C100164700000010807600000000000000014C0000 8000	*.*.B.....USIBMRA.RALYA* *S4B.....USIBMRA* *.RALYAS4A.....<..*	*
55	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=01, SNF'=0003 RH : ('0B9081'X) REQ FMD, FI, BCI, ECI, DR1, ERI, BBI, CEBI		
		RU Command	:	FMH- 5=110502FF0003D000000422F0F0F4000000	*.....}....004...	*
		RU Data	:	005C12C20A8000000010000000F154410E4E2C9C2D4D9C14BD9C1D3E8C1 E2F4C100000C450A80000000000003300174615800110E4E2C9C2D4D9C1 4BD9C1D3E8C1E2F4C200164700000010807600000000000000014C0000 8000	*.*.B.....USIBMRA.RALYA* *S4A.....USIBMRA* *.RALYAS4B.....<..*	*

Figure 270. AS/400A to AS/400B BIND Exchanges

COMMUNICATIONS TRACE		Title: AS/400A TO AS/400B		07/09/89 01:39:42		Page: 5
81	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0004 RH : ('0B9081'X) REQ FMD, FI, BCI, ECI, DR1, ERI, BBI, CEBI		
		RU Command	FMH- 5=110502FF0003D0000000422F0F0F3000000		*.....}....003...	*
		RU Data	004312CA038084148200F3E4E2C9C2D4D9C14BD9C1D6E3D5D5C2F2143C00 F6E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C1143D00F3E4E2C9C2D4D9C14BD9 C1D6E3D7E2C3F0002112C500000100000008E2D5C1E2E5C3D4C700000C2C 010840404040404040003612C48000000001660CF0384B97DD52DB30B E4E2C9C2D4D9C14BD9C1C2172B0101130EF6E4E2C9C2D4D9C14BD9C1D3E8 C1E2F4C2		*.....D.B.3USIBMRA.RAOTNNB2... *6USIBMRA.RALYAS4A...3USIBMRA.R... *A0TPSC0...E.....SNASVCMG... *..D.....D.'N... *USIBMRA.RAB.....6USIBMRA.RALY... *AS4B	*
83	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=01, SNF'=0004 RH : ('0B9081'X) REQ FMD, FI, BCI, ECI, DR1, ERI, BBI, CEBI		
		RU Command	FMH- 5=110502FF0003D0000000422F0F0F3000000		*.....}....003...	*
		RU Data	001F12C44000000001660CF0384B97DD52DB30BE4E2C9C2D4D9C14BD9C1 C2002F12CB038080143C00F6E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C2143D 00F3E4E2C9C2D4D9C14BD9C1D6E3D5D5C2F2001512C500000100000008E2 D5C1E2E5C3D4C70000		*...D.....D.'N...USIBMRA.RA... *B.....6USIBMRA.RALYAS4B... *.3USIBMRA.RAOTNNB2...E..... *NASVCMG..	*
85	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=01, SNF'=0000, EFI RH : ('6B8100'X) REQ SC, FI, BCI, ECI, DR1, PI		
		RU Command	BIND			
		RU Data	31001307B0B051B33F878585873F06020000000000001023000010E4E2 C9C2D4D9C14BD9C1D6E3D7E2C3F0D0000002D5C1E2E5C3D4C71104E4E2 C9C2D4D9C14BD9C1D6E3D7E2C3F00010E4E2C9C2D4D9C14BD9C1D6E3D5D5 C2F22C0A0108404040404040406014CF0384B97DD52DB30BE4E2C9C2D4 D9C14BD9C1C22B2F0202164614800110E4E2C9C2D4D9C14BD9C1D3E8C1E2 F4C1174615800110E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C200		*.....GEEG.....US... *IBMRA.RAOTPSC0...SNASVCMG...US... *IBMRA.RAOTPSC0...USIBMRA.RAOTNN... *B2....D.'N...USIBM... *RA.RAB.....USIBMRA.RALYAS... *4A.....USIBMRA.RALYAS4B.	*
87	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=01, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
		RU Data	000001		*...	*
89	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=0000, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
		RU Command	BIND			
		RU Data	31001307B0B051B300808585800006020000000000001023000001D00 0902E2D5C1E2E5C3D4C71105E4E2C9C2D4D9C14BD9C1D6E3D5D5C2F20000 2C0A0108404040404040406014CF0384B97DD52DB30BE4E2C9C2D4D9C1 4BD9C1C22B2F0202164614800110E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C1 174615800110E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C200		*.....EE..... *..SNASVCMG...USIBMRA.RAOTNNB2... *....D.'N...USIBMRA... *.RAB.....USIBMRA.RALYAS4A... *.....USIBMRA.RALYAS4B.	*
91	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=01, SNF'=0001 RH : ('0A9500'X) REQ FMD, FI, BCI, DR1, ERI, RLWI, PI		
		RU Command	FMH- 5=180502FF0003D0000000206F1090802D9E4E2E2C5D3D30000		*.....}....1...RUSSELL..	*
93	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
		RU Data	000008		*...	*
95	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=01, SNF'=0002 RH : ('019120'X) REQ FMD, ECI, DR1, ERI, PI, CDI		
		RU Data	001812100200000000002000200000000708D7C3E2E4D7D7		*.....QPCSUPP	*
97	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
		RU Data	000008		*...	*
99	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=0001 RH : ('039501'X) REQ FMD, BCI, ECI, DR1, ERI, RLWI, PI, CEBI		
		RU Data	001812100A00000000002000200000000708D7C3E2E4D7D7		*.....QPCSUPP	*

Figure 271. AS/400A to AS/400B BIND Exchanges

COMMUNICATIONS TRACE				Title: AS/400A TO AS/400B	07/09/89 01:39:42	Page: 6
Record Number	S/R	Controller Name	Data Type	SNA Data: TH, RH, RU		
101	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=01, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
		RU Data		00003F	*...	
103	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=01, SNF'=0000, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
		RU Command		UNBIND		
		RU Data		320F00000200014CF0384B97DD52B30BE4E2C9C2D4D9C14BD9C1C2	*.....D.'N...USIBMRA.RAB	
105	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=0000, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
		RU Command		UNBIND		
		RU Data		32	*	
111	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0005 RH : ('0B9001'X) REQ FMD, FI, BCI, ECI, DR1, ERI, BBI, CEBI		
		RU Command		FMH- 5=110502FF0003D000000422F0F0F3000000	*.....}....003..?	
		RU Data		004312CA038084148200F3E4E2C9C2D4D9C14BD9C1D6E3D5D5C2F2143C00 F6E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C1143D00F3E4E2C9C2D4D9C14BD9 C1D6E3D7E2C3F0000012C50000010000007D8D7C3E2E4D7D700000C2C01 0840404040404040003612C48000000001660CF0384B97DD52B60BE4 E2C9C2D4D9C14BD9C1C2172B0101130EF6E4E2C9C2D4D9C14BD9C1D3E8C1 E2F4C2	*.....D.B.3USIBMRA.RAOTNNB2... *6USIBMRA.RALYAS4A...3USIBMRA.R *AOTPSC0...E...QPCSUPP... *.....D.....D.'N...U *SIBMRA.RAB.....6USIBMRA.RALYAS4B *S4B	
113	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=01, SNF'=0005 RH : ('0B9001'X) REQ FMD, FI, BCI, ECI, DR1, ERI, BBI, CEBI		
		RU Command		FMH- 5=110502FF0003D0000000422F0F0F3000000	*.....}....003...	
		RU Data		001F12CA44000000001660CF0384B97DD52B60BE4E2C9C2D4D9C14BD9C1 C2002F12CB038080143C00F6E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C2143D 00F3E4E2C9C2D4D9C14BD9C1D6E3D5D5C2F2001412C500000100000007D8 D7C3E2E4D7D70000	*....D.....D.'N...USIBMRA.RA *B.....6USIBMRA.RALYAS4B... *3USIBMRA.RAOTNNB2...E.....Q *PCSUPP..	
115	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=01, SNF'=0000, EFI RH : ('6B8100'X) REQ SC, FI, BCI, ECI, DR1, PI		
		RU Command		BIND		
		RU Data		31001307B0B051B33F878686873F06020000000000001023000010E4E2 C9C2D4D9C14BD9C1D6E3D7E2C3F01C000802D8D7C3E2E4D7D71104E4E2C9 C2D4D9C14BD9C1D6E3D7E2C3F00010E4E2C9C2D4D9C14BD9C1D6E3D5D5C2 F22C0A010840404040404006014CF0384B97DD52B60BE4E2C9C2D4D9 C14BD9C1C22B2F0202164614800110E4E2C9C2D4D9C14BD9C1D3E8C1E2F4 C1174615800110E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C200	*.....GFFG.....US *IBMRA.RAOTPSC0...QPCSUPP...USI *BMRA.RAOTPSC0...USIBMRA.RAOTNNB *2....-...D.'N...USIBMR *A.RAB.....USIBMRA.RALYAS4A *A.....USIBMRA.RALYAS4B.	
117	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=01, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
		RU Data		000001	*...	
119	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=0000, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
		RU Command		BIND		
		RU Data		31001307B0B051B300808686800000020000000000010230000001C00 0802D8D7C3E2E4D7D71105E4E2C9C2D4D9C14BD9C1D6E3D5D5C2F200002C 0A01084040404040404006014CF0384B97DD52B60BE4E2C9C2D4D9C14B D9C1C22B2F0202164614800110E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C117 4615800110E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C200	*.....FF..... *..QPCSUPP..USIBMRA.RAOTNNB2... *....-...D.'N...USIBMRA. *RAB.....USIBMRA.RALYAS4A. *.....USIBMRA.RALYAS4B.	

Figure 272. AS/400A to AS/400B BIND Exchanges

COMMUNICATIONS TRACE				Title: AS/400A TO AS/400B	07/09/89 01:39:42	Page: 7
Record Number	S/R	Controller Name	Data Type	SNA Data: TH, RH, RU		
121	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=01, SNF'=0001 RH : ('0A9500'X) REQ FMD, FI, BCI, DR1, ERI, RLWI, PI RU Command : FMH- 5=230502FF0003D0000000430F0F1F9120002D9E4E2E2C5D3D3 *.....}....019...RUSSELL * 0801D9E4E2E2C5D3D30000 *..RUSSELL.. *		
123	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
125	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=01, SNF'=0002 RH : ('019520'X) REQ FMD, ECI, DR1, ERI, RLWI, PI, CDI RU Data : 002BD00100010025104100071147D8D7C30006116DC6E200141404141900 *..}.....QPC..._FS..... * 02145700021463000214650002 *..... *		
127	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
129	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=0001 RH : ('039520'X) REQ FMD, BCI, ECI, DR1, ERI, RLWI, PI, CDI RU Data : 0031D0030001002B144300071147D8C1E2000C116DD9C1D3E8C1E2F4C200 *..}.....QAS..._RALYAS4B. * 14140414650002146300021419000214570002 *..... *		
131	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=01, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
133	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=01, SNF'=0003 RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI RU Data : 0013D0010001000D104F000911656140C6D4E2 *..}.....|.... / FMS *		
135	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=0002 RH : ('039120'X) REQ FMD, BCI, ECI, DR1, ERI, PI, CDI RU Data : 0010D0020001000A124B000611490000 *..}..... *		
137	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=01, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
139	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=01, SNF'=0004 RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI RU Data : 001AD00100010014104F0010116561D8C9E6E2C6D3D940C6D4E2 *..}.....|.... / QIWSFLR FMS *		
141	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=0003 RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI RU Data : 0010D0020001000A124B000611490000 *..}..... *		
151	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0006 RH : ('0B9001'X) REQ FMD, FI, BCI, ECI, DR1, ERI, BBI, CEBI RU Command : FMH- 5=110502FF0003D0000000422F0F0F3000000 *.....}.....003... * RU Data : 004312CA030804148200F3E4E2C9C2D4D9C14B09C1D6E3D5D5C2F2143C00 *.....D.B.3USIBMRA.RAOTNNB2... * F6E4E2C9C2D4D9C14B09C1D3E8C1E2F4C1143D00F3E4E2C9C2D4D9C14B09 *6USIBMRA.RALYAS4A...3USIBMRA.R * C1D6E3D7E2C3F0002012C500000100000007D8D7C3E2E4D7D700000C2C01 *AOTPC0...E.....QPCSUPP..... * 0840404040404040003612C48000000001660CF0384B97DD52DBC0BE4 *.....D.'N...U * E2C9C2D4D9C14B09C1C2172B0101130EF6E4E2C9C2D4D9C14B09C1D3E8C1 *SIBMRA.RAB.....6USIBMRA.RALYA * E2F4C2 *S4B *		

Figure 273. AS/400A to AS/400B BIND Exchanges

COMMUNICATIONS TRACE				Title: AS/400A TO AS/400B	07/09/89 01:39:42	Page: 8
Record Number	S/R	Controller Name	Data Type	SNA Data: TH, RH, RU		
153	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=01, SNF'=0000 RH : ('0B9081'X) REQ FMD, FI, BCI, ECI, DR1, ERI, BBI, CEBI RU Command : FMH- 5=110502FF00030000000422F0F0F3000000 RU Data : 001F12C44000000001660CF0384B97DD52D8C08E4E2C9C2D4D9C14B09C1 C2002F12C8038000143C00F6E4E2C9C2D4D9C14B09C1D3E8C1E2F4C2143D 00F3E4E2C9C2D4D9C14B09C1D6E3D5D5C2F2001412C500000100000007D8 D7C3E2E4D7D70000 *.....}....003... *...D .....D.'N...USIBMRA.RA* *B.....6USIBMRA.RALYAS4B... *3USIBMRA.RAOTNNB2...E.....0* *PCSUPP..		
155	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=03, OAF'=01, SNF'=0000, EFI RH : ('6B8100'X) REQ SC, FI, BCI, ECI, DR1, PI RU Command : BIND RU Data : 31001307B08051B3F878686873F06020000000000001023000010E4E2 C9C2D4D9C14B09C1D6E3D7E2C3F01C000002D8D7C3E2E4D7D71104E4E2C9 C2D4D9C14B09C1D6E3D7E2C3F00010E4E2C9C2D4D9C14B09C1D6E3D5D5C2 F22C0A01084040404040406014CF0384B97DD52D8C08E4E2C9C2D4D9 C14B09C1C22B2F0202164614800110E4E2C9C2D4D9C14B09C1D3E8C1E2F4 C1174615800110E4E2C9C2D4D9C14B09C1D3E8C1E2F4C200 *.....GFF6.....US* *IBMRA.RAOTPCSC....QPCSUPP..USI* *BMRA.RAOTPCSC...USIBMRA.RAOTNNB* *2....-...D.'N...USIBMRA* *A.RAB.....USIBMRA.RALYAS4* *A.....USIBMRA.RALYAS4B.		
157	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=01, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI RU Data : 000001 *....		
158	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=03, SNF'=0000, EFI RH : ('E8000'X) RSP SC, FI, DR1 RU Command : BIND RU Data : 31001307B08051B300808686800006020000000000001023000001C00 0802D8D7C3E2E4D7D71105E4E2C9C2D4D9C14B09C1D6E3D5D5C2F200002C 0A0108404040404040406014CF0384B97DD52D8C08E4E2C9C2D4D9C14B D9C1C22B2F0202164614800110E4E2C9C2D4D9C14B09C1D3E8C1E2F4C117 4615800110E4E2C9C2D4D9C14B09C1D3E8C1E2F4C200 *.....FF.....* *..QPCSUPP..USIBMRA.RAOTNNB2...* *...-...D.'N...USIBMRA.* *RAB.....USIBMRA.RALYAS4A.* *.....USIBMRA.RALYAS4B.		
161	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=03, OAF'=01, SNF'=0001 RH : ('0A9500'X) REQ FMD, FI, BCI, DR1, ERI, RLWI, PI RU Command : FMH- 5=230502FF000300000400430F0F0F5120802D9E4E2E2C5D3D3 0801D9E4E2E2C5D3D30000 RU Data : 005912F5005512E2005112A020000510010000002300000000000000000 00F3F1F9F74040C3F14040404000000000000000000000000022C4E4E2 C200F6F9F740F0F3F7404040404040404040404040404040404040E2F2 *.....}. .005...RUSSELL *..RUSSELL.. *...5...S.....* *3197 C1 .....DUS* *B.697 037 S2 *		
163	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=03, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI RU Data : 000000 *....		
165	S	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=03, OAF'=01, SNF'=0002 RH : ('019520'X) REQ FMD, ECI, DR1, ERI, RLWI, PI, CDI No RU data		
167	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=03, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI RU Data : 00000F *....		
169	R	TRNAS400B	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=03, SNF'=0001 RH : ('03A500'X) REQ FMD, BCI, ECI, DR1, DR2, RLWI, PI RU Data : 004812A0900005001002000003C0000C9F9F0F2D9C1D3E8C1E2F4C2D9C1 D6E3D7E2C3F0E2F200 000000000000000000000000 *.....I902RALYAS4BRA* *OTPC0S2.....* *.....*		

Figure 274. AS/400A to AS/400B BIND Exchanges

7.0 Scenario 4: PS/2 (DOS3.3) -- AS/400A -- S/370 -- AS/400B

7.1 Environment Tested

In this chapter we will describe the definitions required to connect a PS/2 with AS/400 PC Support to AS/400A via a token-ring. We have already discussed how to connect AS/400A and AS/400B to the S/370 subarea network in chapter 5.0, "Scenario 2: AS/400A, AS/400B and PS/2 Adjacent to the Host" on page 99 so please refer to that chapter for detailed information and definitions.

We will also describe how the PS/2 with AS/400 PC Support can establish sessions with both AS/400A and AS/400B which are situated on either side of an S/370 subarea network.

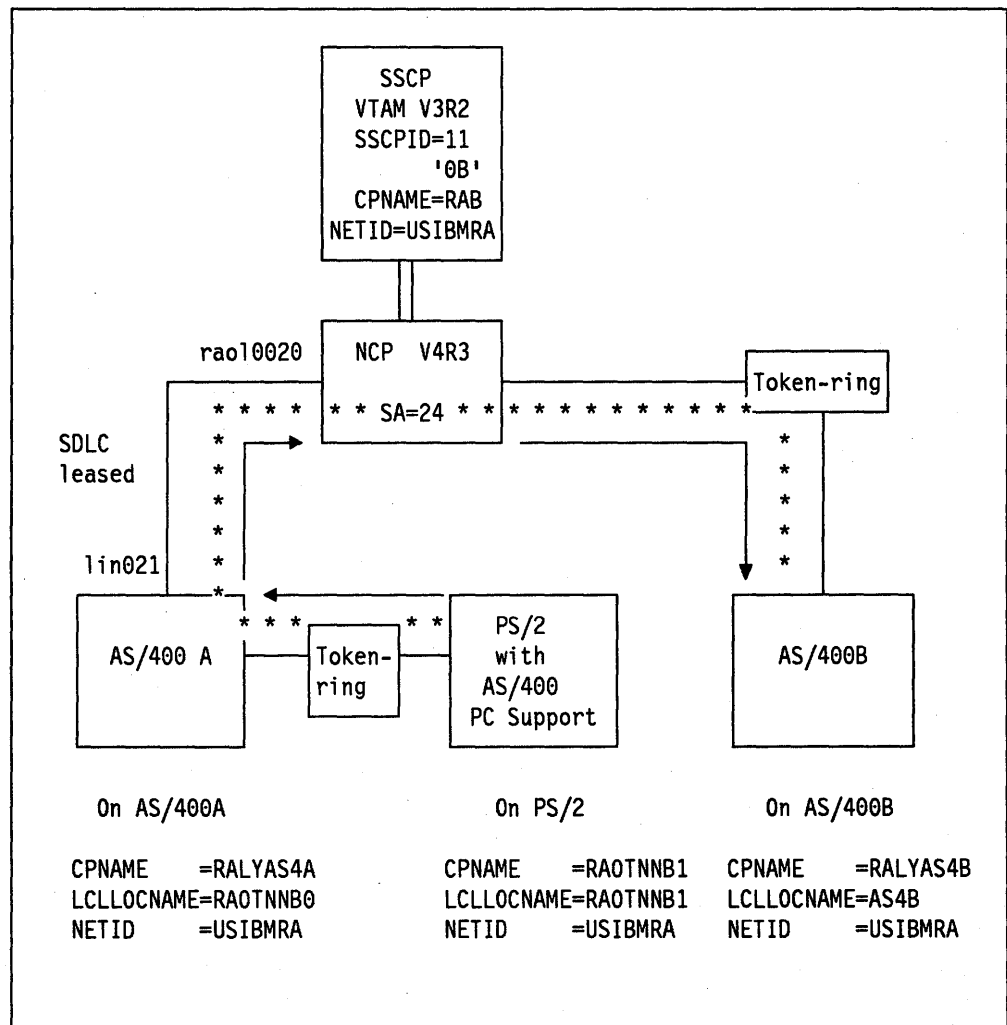


Figure 276. Scenario 4

7.2 Definitions on AS/400A (RALYAS4A) for PS/2 (RAOTNNB1)

When you are going to connect an PS/2 to AS/400A via a token-ring you are required to perform the following steps:

- Check the network attributes
- Create a line description from AS/400A to the PS/2
- Create an APPC controller description for the PS/2
- Configure APPN remote and local location lists
- Create a mode entry.

7.2.1 Network Attributes

The network attributes contain the AS/400's local system values for APPN. You can display these attributes by using the DSPNETA command or by going to menu "NETWORK".

MAIN

AS/400 Main Menu

System: RALYAS4A

Select one of the following:

1. User tasks
2. Office tasks
3. General system tasks
4. Files, libraries, and folders
5. Programming
6. Communications
7. Define or change the system
8. Problem handling
9. Display a menu

90. Sign off

Selection or command
==> dspneta

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
F23=Set initial menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 277. AS/400 Main Menu Screen

Type DSPNETA to display the network attributes.

Display Network Attributes		System: RALYAS4A
Current system name	:	RALYAS4A
Pending system name	:	
Local network ID	:	USIBMRA
Local control point name	:	RALYAS4A
Default local location	:	RALYAS4A
Default mode	:	MODS361
Maximum number of conversations for a remote		
location	:	64
APPN node type	:	*NETNODE
Maximum number of intermediate sessions	:	200
Route addition resistance	:	128
Server network ID/control point name	:	
		More...
Press Enter to continue.		
F3=Exit F12=Previous		

Figure 278. Display Network Attributes Screen

Notice we have defined the local control point name, local network ID, default location name and APPN node type. You can change these parameters by the CHGNETA command or by taking option 2 from the Network menu.

Display Network Attributes		System: RALYAS4A
Alert status	:	*UNATTEND
Alert primary focal point	:	*NO
Alert default focal point	:	*NO
Alert logging status	:	*ALL
Alert controller description	:	
Message queue	:	QSYSOPR
Library	:	QSYS
Output queue	:	QPRINT
Library	:	QGPL
Job action	:	*FILE
Maximum hop count	:	16
DDM request access	:	*OBJAUT
PC Support request access	:	*OBJAUT
Press Enter to continue.		
F3=Exit F12=Previous		

Figure 279. Display Network Attributes Screen (continued)

7.2.2 Create Line Description

The first step in defining the PS/2 to AS/400A is to create the line description. You can do this by either following the screens documented or by using the CL command CRTLINTRN.

```
MAIN                      AS/400 Main Menu                      System:  RALYAS4A

Select one of the following:

    1. User tasks
    2. Office tasks
    3. General system tasks
    4. Files, libraries, and folders
    5. Programming
    6. Communications
    7. Define or change the system
    8. Problem handling
    9. Display a menu
    90. Sign off

Selection or command
===> 6

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F23=Set initial menu

(C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 280. AS/400 Main Menu Screen

Select option 6 in Figure 280 to go to the Communications screen.

```
CMN                      Communications                      System:  RALYAS4A

Select one of the following:

    1. Communication status
    2. Messages
    3. Remote jobs
    4. Configure communications
    5. Network management
    6. Network configuration
    7. Verify communications
    8. Send or receive files
    9. Jobs
    70. Related commands

Selection or command
===> 4

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 281. Communications Screen

Select option 4 in Figure 281 to configure communications.

```

CFGCMN          Configure Communications and Remote Hardware
                                     System:  RALYAS4A
Select one of the following:

    1. Lines
    2. Communications controllers
    3. Work station controllers
    4. Communications devices
    5. Printers
    6. Display stations
    7. Modes
    8. Classes-of-service
    9. Configure address and location lists

Selection or command
==> 1

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu
                                     (C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 282. Configure Communications and Remote Hardware Screen

Select option 1 in Figure 282 to define your line description.

```

                                     Work with Line Descriptions
                                     System:  RALYAS4A
Position to . . . . . Starting character(s)

Type options, press Enter.
    2=Change  3=Copy  4=Delete  5=Display  6=Print

Opt  Line      Type      Text

Parameters for option 2 or command
==>

F3=Exit  F4=Prompt  F5=Refresh  F6=Create  F9=Retrieve  F12=Previous
F14=Work with status
                                     (C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 283. Work with Line Descriptions Screen

Select option F6 in Figure 283 to create the line description.

```

                                     Create Line Description

Type choices, press Enter.

New line description  L41TR      Name
Line type . . . . . *TRLAN      *ASYN=Asynchronous communications
                                   *BSC=Binary synchronous communications
                                   *SDLC=Synchronous data link control
                                   *TDL=Twiaxial data link control
                                   *TRLAN=Token-Ring local area network
                                   *X25=X.25 communications network

F3=Exit  F12=Previous

```

Figure 284. Create Line Description Screen

The line type we are using is *TRLAN.

```

CRTLINTRN          Create Line Desc (Token-Ring)

Type choices, press Enter.

Line description . . . . . ► L41TR          Name
Resource name . . . . . lin041             Name
Online at IPL . . . . . *YES               *YES, *NO
Vary on wait . . . . . *NOWAIT             *NOWAIT, 15-180 (1 second)
Maximum controllers . . . . . 40            1-256
Maximum frame size . . . . . 1994           265, 521, 1033, 1994
Local adapter address . . . . . 400010020001 400000000000-7FFFFFFF...
Exchange identifier . . . . . *SYSGEN        05600000-056FFFFF, *SYSGEN
SSAP list:
  Source Service Access Point . *SYSGEN      *SYSGEN, 04, 08, 0C, 10...
    + for more values
Text 'description' . . . . . Token-Ring Line Description
F3=Exit  F4=List  F5=Refresh  F10=Additional parameters  F11=Keywords
F12=Previous  F13=How to use this display

```

Figure 285. Create Line Description (TRLAN) Screen

The resource name is the name of the physical communications port on the AS/400. It can be found by executing the command WRKHDWPRD and taking the option to work with your rack configuration.

The local token-ring adapter address of AS/400A is 400010020001.

Press Enter to create your line description. It will return you to the "Work with line descriptions" screen.

7.2.3 Create APPC Controller Description

Now you must create an APPC controller description which describes the PS/2 you are connecting to. Again, you can follow the screens or enter the CL command CRTCTLAPPC.

```
CFGCMN          Configure Communications and Remote Hardware
                                     System:  RALYAS4A
Select one of the following:

    1. Lines
    2. Communications controllers
    3. Work station controllers
    4. Communications devices
    5. Printers
    6. Display stations
    7. Modes
    8. Classes-of-service
    9. Configure address and location lists

Selection or command
===> 2

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu
                                     (C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 286. Configure Communications and Remote Hardware Screen

Select option 2 in Figure 286 to configure your APPC controller.

```
                                Work with Controller Descriptions
                                     System:  RALYAS4A
Position to . . . . . Starting character(s)

Type options, press Enter.
    2=Change  3=Copy  4=Delete  5=Display  6=Print

Opt  Controller  Type  Text
    QESCTL      *HOST
    QTICTL      *HOST

Parameters for option 2 or command
===>

F3=Exit  F4=Prompt  F5=Refresh  F6=Create  F9=Retrieve  F12=Previous
F14=Work with status
                                     (C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 287. Work with Controller Descriptions Screen

Select F6 to create your APPC controller description.


```

                                Create Controller Description

Type choices, press Enter.

New controller
description . . . . . TRCTLPS      Name

Controller type/class  *APPC      *APPC=Advanced program-to-program
                                   communications
                                   *ASYN=Asynchronous communications
                                   *BSC=Binary synchronous communications
                                   *FNC=Finance
                                   *HOST=SNA host

F3=Exit  F12=Previous

```

Figure 288. Create Controller Description Screen

We will be defining *APPC as our controller type as we will be communicating to AS/400B.

```

CRTCTLAPPC      Create Ctl Desc (APPC)

Type choices, press Enter.

Controller description . . . . . ▶ TRCTLPS      Name
Link type . . . . . ▶ *TRLAN      *SDLC, *TRLAN, *X25
Online at IPL . . . . . *YES      *YES, *NO
APPN capable . . . . . *YES      *YES, *NO
Switched line list . . . . . ▶ L41TR      Name
      + for more values
Maximum frame size . . . . . *LINKTYPE      *LINKTYPE, 265, 521, 1033...
Remote network identifier . . . ▶ USIBMRA      Name, *NETATR, *NONE
Remote control point name . . . ▶ PS2      Name
SSCP identifier . . . . . ▶      050000000000-05FFFFFFFFFFFF
Initial connection . . . . . *ANS      *DIAL, *ANS
TRLAN remote adapter address . . ▶ 4000000000045 000000000001-FFFFFFFFFFFF
APPN CP session support . . . *NO      *YES, *NO
APPN node type . . . . . *LENODE      *ENDNODE, *LENODE...
APPN transmission grp number . . 1      1-20, *CALC

F3=Exit  F4=List  F5=Refresh  F11=Keywords  F12=Previous  More...
F13=How to use this display

```

Figure 289. Create Controller Description (APPC) Screen

In Figure 289 we will be defining "APPN capable" as *YES. The APPC device descriptions will be automatically created, varied on and attached to the right controller using the information defined in the network attributes, the associated mode description, the location list and the application program. It also means that the local system will appear as an End Node or Network Node to the adjacent system.

We will use the switched line list name to the token-ring name we have just created.

The token-ring adapter address of the PS/2 is 4000000000045.

Press Enter to create your APPC controller description.

7.2.4 Configure APPN Remote and Local Location List

Since we defined our APPC controller with APPN(*YES) the device descriptions will be automatically created. After the automatic creation of the devices, the AS/400 will vary them on and attach them to the correct controller in the following situations:

- When a session is requested and the route chosen and the controller description doesn't already have a device description with the specified remote location name, remote NETID and local location name defined.
- When a BIND is received for a local location and the controller description doesn't already have a device description with the specified remote location name, remote NETID and local location name defined.

The AS/400A, in this scenario, doesn't require the remote location of the PS/2 to be defined as the PS/2 will always be initiating the sessions.

7.2.5 Create Mode Description

The mode description describes the session characteristics and number of sessions that will be used to negotiate the allowable values between the local and remote locations. A mode with the same name must exist at both end points. There must also be a mode entry with the same name in VTAM/NCP.

This mode description QPCSUPP is created automatically when AS/400 PC Support is installed on AS/400A and must be used with AS/400 PC Support.

In Figure 290 the mode characteristics of QPCSUPP are shown.

Display Mode Description		
Mode description name	MODD	QPCSUPP
Class-of-service	COS	#CONNECT
Maximum number of sessions	MAXSSN	64
Maximum conversations	MAXCNV	64
Locally controlled sessions	LCLCTLSSN	0
Pre-established sessions	PREESTSSN	0
Inbound pacing value	INPACING	7
Outbound pacing value	OUTPACING	7
Max length of request unit	MAXLENRU	2048
Text	TEXT	AS/400 PC Support mode entr
y		
Press Enter to continue.		
F3=Exit F12=Previous		

Figure 290. Display Mode Descriptions Screen

The parameters defined here must match those defined on the remote location.

7.3 Relationship between AS/400A and the PS/2

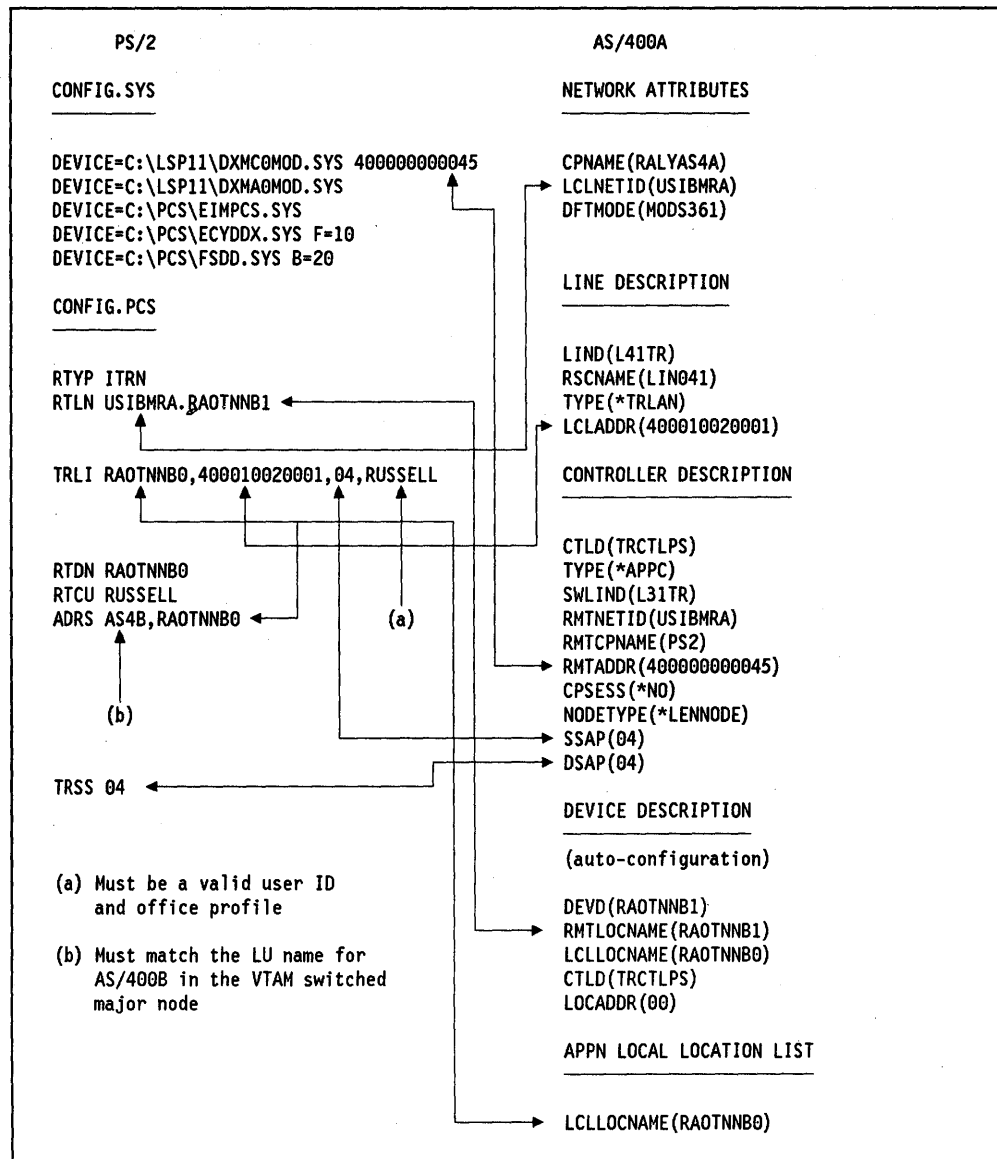


Figure 291. Relationship between AS/400A and PS/2

7.4 Definitions on the AS/400A (RALYAS4A) to Host

When you are going to connect AS/400A as an APPN node to an S/370 subarea to support independent LUs you are required to perform the following steps:

- Check the network attributes
- Create a line description from AS/400A to VTAM/NCP
- Create a host controller description for the S/370 host
- Configure APPN remote and local location list
- Create a mode entry.

We have already defined the definitions required to connect AS/400A to the host. You can refer to this information in Chapter 5.0, "Scenario 2: AS/400A, AS/400B and PS/2 Adjacent to the Host" on page 99.

7.5 Definitions on AS/400 B (RALYAS4B) to Host

When you are going to connect AS/400B as an APPN node to an S/370 subarea to support independent LUs you are required to perform the following steps:

- Check the network attributes
- Create a line description from the AS/400B to VTAM/NCP
- Create a host controller description for the S/370 host
- Configure APPN remote and local location lists
- Create a mode entry.

We have already defined the definitions required to connect AS/400B to the host. You can refer to this information in Chapter 5.0, "Scenario 2: AS/400A, AS/400B and PS/2 Adjacent to the Host" on page 99.

7.6 Definitions on the PS/2 (RAOTNNB1)

In order to configure the PS/2 with AS/400 PC Support to connect to AS/400A we must perform the following:

- Install PC Support on the AS/400A
- Initialize PC Support code on the AS/400A
- Install PC Support on the PS/2
- Modify the CONFIG.SYS file on the PS/2
- Modify the CONFIG.PCS file on the PS/2
- Change the STARTPCS.BAT file on the PS/2.

7.6.1 Install PC Support on the AS/400A

Sign on to the AS/400 as security officer (QSECOFR) to install AS/400 PC Support. See *AS/400 Licensed Programs Installation Guide* for installation instructions.

7.6.2 Initialize PC Support code on the AS/400A

You will have to run the CL command INZPCS in order to initialize AS/400 PC Support. All personal computers using PC Support need to have the same keyboard type and code pages. If you enter the command with no parameters, it will take the default from the system.

7.6.3 Install PC Support on the PS/2

In the following installation description we assume that DOS 3.30 has already been installed on the PS/2.

Insert the AS/400 PC Support (PCS) diskette into drive A and type: **A INSTALL**.

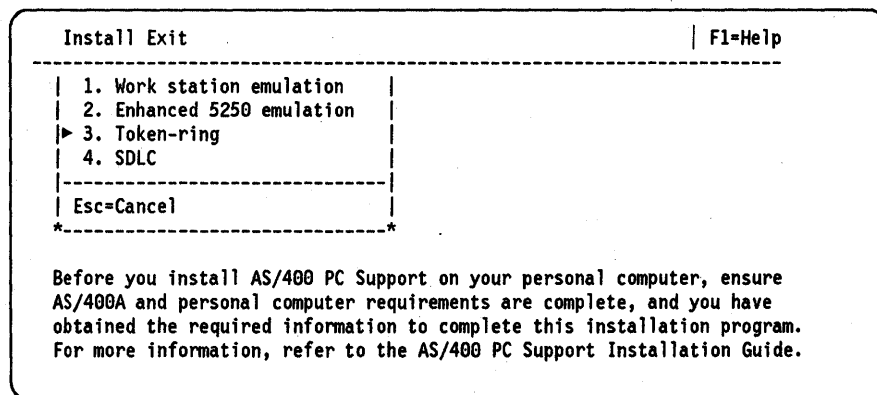


Figure 292. Installation Options Screen

Figure 292 is the screen that is displayed after you enter the INSTALL command. You will be installing the token-ring support so you will take option 3 on the Installations Options screen.

Then the following screen will be displayed:

```

Installing AS/400 PC Support
(Token-ring)
Complete the following with the information from the form; press Enter.

PCS directory drive          . . . (C)

PC location name            . . . . . (USIBMRA.RAOTNNB1)

System name                 . . . . . (RAOTNNB0)

System
token-ring address . . . . . (400010020001)

Which functions
will you use?               . . .>Organizer
                             >Work Station Function
                             >Message Function
                             >Virtual Printer
-----
Enter Esc=Cancel F1=Help F3=Exit

```

Figure 293. Installing AS/400 PC Support (SDLC) Screen

After entering these values, the PCS directory is created in the disk drive C and the PC Support files are copied from the AS/400 PC Support diskette to this directory. At the same time the CONFIG.SYS file is modified and the files CONFIG.PCS and STARTPCS.BAT are created using the information you have just entered.

```

C:\PCS>dir

Volume in drive C is DOSTUG
Volume Serial Number is 2353-14EE
Directory of C:\PCS

ECYDDX  SYS      20384 08-31-88  8:44a
FSDD    SYS      49280 06-24-89  3:37a
EIMPCS  SYS      5520 06-24-89  3:37a
XXRTRS  MRI      13848 06-24-89  3:39a
FSPC    EXE      88640 06-24-89  3:37a
FSPC    HLP      12393 01-01-80  12:03a
STARTRTR EXE     70168 06-24-89  3:37a
STOPRTR EXE     42728 06-24-89  3:37a
ITRNRTR EXE     52724 06-30-89  6:16a
CONFIG  PCS       110 05-30-89  11:05a
STARTPCS BAT     554 05-30-89  8:59a
UPDATE  PCS       40 10-28-88  9:26a
      14 File(s)  21358496 bytes free

```

Figure 294. PCS Directory on drive C Screen

Figure 294 displays the PCS directory when the installation is completed.

7.6.4 Modify the CONFIG.SYS File on the PS/2

The CONFIG.SYS file is the PS/2 configuration file and not a AS/400 PC Support file. If you already have this file on your PS/2, the installation program will automatically add the device drivers to be used by the PC Support memory manager and shared folders. If you are using the workstation function, "files=15" will be added to the CONFIG.SYS file. If you are using a token-ring attachment, the device drivers for the LAN adapter handler will be included in CONFIG.SYS file if not already there.

We also included F=10 to the ECYDDX driver which allows ten files to be opened at one time and B=20 to the FSDD driver which sets aside twenty blocks (block size is 1880 bytes) of storage for cache buffering on the PS/2.

```

C>type CONFIG.SYS
files=15
break=on
lastdrive=Z
BUFFERS=20
DEVICE=C:\LSP11\DXMCMOD.SYS 400000000045
DEVICE=C:\LSP11\DXMTOMOD.SYS S=8 ST=8 C=8 O=N ES=2 EST=2
DEVICE=C:\LSP11\DXMAOMOD.SYS
DEVICE=C:\PCS\EIMPCS.SYS
DEVICE=C:\PCS\ECYDDX.SYS F=10
DEVICE=C:\PCS\FSDD.SYS B=20

```

Figure 295. CONFIG.SYS File Screen

7.6.5 Modify the CONFIG.PCS File on the PS/2

This file is the PC Support configuration file on the PS/2. It is created with the parameters you defined when you installed PC Support on the PS/2. In Figure 296 you can see the default CONFIG.PCS file that was created.

```

C>cd PCS
C:\PCS>type CONFIG.PCS.
RTYP ITRN
RTLN USIBMRA,RAOTNNB1
TRLI RAOTNNB0,400010020001

```

Figure 296. CONFIG.PCS Default File Screen

We will now tailor this CONFIG.PCS file to add in the parameters for the token-ring connection to AS/400A and the parameters for AS/400B.

In Figure 297 on page 227 the following parameters are defined:

- **RTYP ITRN** specifies the router to use when communicating with AS/400A.
- **RTLN USIBMRA,RAOTNNB1** uniquely identifies the PS/2 to the network. The network identifier is USIBMRA and the PC location name is RAOTNNB1. This name is sent to the AS/400 whenever the router makes contact.
- **TRLI RAOTNNB0,400010020001,04,RUSSELL** specifies the link identification and must be in the CONFIG.PCS file when the IBM token-ring router is used. Link identification includes the system name (which must match the local location name on AS/400A, the token-ring address of AS/400A, the destination SAP and userid (which must be a valid user profile name on AS/400A).
- **RTDN RAOTNNB0** specifies the default system name used to start conversations if a name is not used. In this case it is AS/400A's local location name.
- **RTCU RUSSELL** specifies the common user ID to be used.
- **ADRS AS4B,RAOTNNB0** specifies the system name AS4B and the link identification name of RAOTNNB0. AS4B must match the local location name on AS/400B and the LU name defined in the VTAM switched major node defi-

dition for AS/400B. RAOTNNB0 must match the system name in the link identifier TRLI.

```
RTYP ITRN
RTLN USIBMRA.RAOTNNB1
TRLI RAOTNNB0,400010020001,04,RUSSELL
RTDN RAOTNNB0
TRSS 04
RTCU RUSSELL
ADRS AS4B,RAOTNNB0
```

Figure 297. Tailored CONFIG.PCS File for the PS/2 token-ring Link

7.6.6 Change the STARTPCS.BAT File on the PS/2

This file is created when you install PC Support on the PS/2. The contents will depend on the functions you selected in Figure 293 on page 225. This file will contain the necessary commands to start PC Support. If you have the option to leave this file as created or to customize it for your specific requirements. Details of this customization can be found in *PC Support Operations Reference Manual*. We recommend that you copy the contents of QIWSFLR to your fixed disk drive. Once that has been done you must change the STARTPCS.BAT file to run from the C drive.

The following screen displays the **STARTPCS.BAT** file.

C: \PCS\STARTRTR C: PCS\CONFIG.PCS ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Start SDLC Router
ECHO ON C: \PCS\FSPC ASSIGN I: QIWSFLR //RAOTNNB0 ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Assign drive I to AS/400A folder QIWSFLR
ECHO ON C: \PCS\FSPC ASSIGN J: QIWSFLR //AS4B ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Assign drive I to AS/400B folder QIWSFLR
ECHO ON C: \PCS\PCSUPDT I: \ C: \PCS ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Run PC Support Update Function
ECHO ON C: \PCS\STARTMSG C: \PCS\CONFIG.PCS ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Start Message Function
ECHO ON C: \PCS\VPRT ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Start Virtual Print Function
ECHO ON C: \PCS\WSF C: \PCS\WSF1.DAT ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	Start Workstation Function to AS/400A and AS/400B.
ECHO ON C: \PCS\STARTWSF 1 ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	
ECHO ON C: \PCS\STARTWSF 2 ECHO OFF IF ERRORLEVEL 20 GOTO EXIT	
ECHO ON C: \PCS\PCO C: \PCS\CONFIG.PCS ECHO OFF : EXIT ECHO ON	Start AS/400 PC Support Organizer

Figure 298. STARTPCS.BAT File

7.7 Definitions Defined in the Host (RAB) for the PS/2

```

***** 01220008
*      BUILD MACRO SPECIFICATIONS * 01230008
***** 01240008
NCPBUILD BUILD VERSION=V4R3, # NCP V4 REL3 X01250008
      ADDSESS=20, ENOUGH BLOCKS DEFINED IN RESSCB X01260008
      AUXADDR=10, ADDITIONAL PLU ADDRESSES FOR ILU X01260108
      ENABLT0=6.5, IBM 386X REQUIRE 6.5 AS MINIMUM X01370008
      MAXSESS=16, MAX LU-LU SESSIONS ANY LU CAN HAVE X01400008
      MAXSSCP=8, MAXIMUM SESSIONS FOR LU X01401008
      MODEL=3725, !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!! X01420008
      NAMTAB=50, # ENTRIES FOR SSCP, CP & NET NAMES X01430008
      NETID=USIBMRA, NATIVE NETWORK X01431008
      NEWNAME=RAONCP0, NAME OF THIS LOAD MODULE V3X01440008
      SUBAREA=24, SUBAREA ADDRESS = 24 X01470008
      COSTAB=ISTSDCOS, COS TABLE USED TO ACTIVATE ER/VR X01520008
      SESSLIM=64, NUMBER OF SESSIONS PER NAF 01580008
      : :
      : :

```

Figure 299. NCP BUILD Macro for the AS/400A and PS/2

In Figure 299 we define the BUILD macro which indicates the NCP version, the type of communication controller to be used and the name of this load module. It also specifies the NCP subarea of 24. USIBMRA is the network ID for the VTAM/NCP node.

```

***** 04750008
*      LINE MACRO SPECIFICATION SDLC LINK 020 04760008
***** 04770008
RAOL0020 LINE ADDRESS=(020,HALF), TRANSMIT AND RECEIVE ADDRESSES X04780008
      NPACOLL=YES, NPAX04790008
      ANS=CONTINUE, DON'T BREAK CROSS DOMAIN SESSIONS X04800008
      OWNER=RAB, (V) VTAM X04810008
      ISTATUS=ACTIVE, X04820008
      DUPLEX=(FULL), REQUEST TO SEND ALWAYS UP X04830008
      ETRATIO=30, DEFAULT X04840008
      LPDATS=LPDA1, X04850008
      MAXPU=9, ALLOW NO MORE THAN 9 PUS ON LINE X04860008
      SERVLIM=2, X04870008
      SRT=(,64), X04880008
      SPEED=(4800) LINE SPEED IS 4800 BPS 04890008
      ATTACH=MODEM, # NOT SUPPORTED V4R3 04900008
***** 04920008
* * 04930008
* SERVICE MACRO SPECIFICATION FOR SDLC (LINE 020) * 04940008
* * 04950008
***** 04960008
      SERVICE ORDER=(RAOP07, X04970008
      RAOP08, X04980008
      RAOP1B, AS/400A X04981012
      RAOP5C, PS/2 X04982016
      RAOP09), S/38 X04990008
      MAXLIST=9 05000008
***** 05010008

```

Figure 300. NCP Line Macro for the AS/400A and PS/2

In Figure 300 the line RAOL0020 is specified as a non-switched multipoint line attached to the host RAB.

```

***** 07993008
* PU/LU MACRO RESERVED FOR THE AS/400A (RALYAS4A) * 08000008
***** 08010008
*RAOP1B PU ADDR=C4, 3270 ADDRESS='C' (EBCDIC) X 08020008
* 08021009
* PU AND LU DEFINITION FOR AS/400A 08022009
* FOR SUPPORT DEPENDENT AND INDEPENDENT LUS 08023009
* GER ROOVERS EXT.2322 08024009
* 08025009
***** 08026010
RAOP1B PU ADDR=C4, 3270 ADDRESS='C' (EBCDIC) X08029209
MAXDATA=265, MAXIMUM AMOUNT OF DATA X08029309
MAXOUT=7, MAX SDLC FRAMES BEFORE RESPONSE X08029409
PACING=(7), PACING SET BY BIND IMAGE X08029512
ANS=CONTINUE, KEEPS CROSS-DOMAIN RUNNING X08029609
PASSLIM=7, X08029709
PUTYPE=2, X08029809
RETRIES=(,1,4), 4 RETRIES, 1 SECOND BETWEEN X08029909
DISCNT=(NO), (V) VTAM ONLY X08030009
ISTATUS=ACTIVE, (V) VTAM ONLY X08030109
VPACING=8, (V) VTAM ONLY X08030210
XID=YES 08030310
STATOPT='AS/400 T2.1' 08030410
***** 08030509
* DEFINITIONS FOR AS/400A * 08030609
* RAOTNNB0 TO B3 INDEPENDENT LUS 08030709
***** 08031609
RAOTNNB0 LU RESSCB=4, INDEPENDENT LU for AS/400A X08031710
LOCADDR=0, X08031813
MODETAB=MTGS3X, X08031910
DLOGMOD=MODS361, X08032010
ISTATUS=ACTIVE 08032110
* STATOPT='INDEPENDENT LU' 08032210
RAOTNNB1 LU RESSCB=4, INDEPENDENT LU for PS/2 X08032310
LOCADDR=0, X08032413
MODETAB=MTGS3X, X08032510
DLOGMOD=QPCSUPP, X08032610
ISTATUS=ACTIVE 08032710
* STATOPT='INDEPENDENT LU' 08032810
RAOTNNB2 LU RESSCB=4, INDEPENDENT LU for AS/400B X08032910
LOCADDR=0, X08033013
MODETAB=MTGS3X, X08033110
DLOGMOD=QPCSUPP, X08033210
ISTATUS=ACTIVE 08033310
* STATOPT='INDEPENDENT LU' 08033410
RAOTNNB3 LU RESSCB=4, INDEPENDENT LU X08033510
LOCADDR=0, X08033613
MODETAB=MTGS3X, X08033710
DLOGMOD=MODS361, X08033810
ISTATUS=ACTIVE 08033910
* STATOPT='INDEPENDENT LU' 08034010

```

Figure 301. NCP PU and LU Macro for the AS/400

In Figure 301 the PU "RAOP1B" has a PU address of C4 defined. This value has to match the station address defined in the AS/400A controller description for this host.

PUTYPE=2 and XID=YES must be specified so the host appears as a T2.1 node to the AS/400.

The LU used for scenario 4 is RAOTNNB0 for AS/400A and RAOTNNB1 for PS/2. Because they are independent LUs, we have to specify LOCADDR=0. RESSCB=4 means that this specific LU has four reserved session control blocks for itself.

7.8 Activate Communications on AS/400A to PS/2

This section will describe how to activate a communications link between AS/400A and the PS/2.

To activate a token-ring line on AS/400A you need to "vary on" the line then the controller. The following screens will guide you through this exercise. You can also go directly to the Work with Configuration Status screen by using the WRKCFGSTS command.

MAIN

AS/400 Main Screen

System: RALYAS4A

Select one of the following:

1. User tasks
2. Office tasks
3. General system tasks
4. Files, libraries, and folders
5. Programming
6. Communications
7. Define or change the system
8. Problem handling
9. Display a menu

90. Sign off

Selection or command
==> 6

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
F23=Set initial menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 302. AS/400 Main Screen

Select option 6 in Figure 302 to go to the Communications screen.

CMN	Communications	System: RALYAS4A
-----	----------------	------------------

Select one of the following:

1. Communication status
2. Messages
3. Remote jobs
4. Configure communications
5. Network management
6. Network configuration
7. Verify communications
8. Send or receive files
9. Jobs

70. Related commands

Selection or command
==> 1

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 303. Communications Screen

Select option 1 in Figure 303 to choose the Communications Status screen.

CMNSTS	Communications Status	System: RALYAS4A
--------	-----------------------	------------------

Select one of the following:

1. Work with line status
2. Work with controller status
3. Work with device status

70. Related commands

Selection or command
==> 1

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 304. Communications Status Screen

Select option 1 in Figure 304 to work with line status.

WRKCFGSTS	Work with Configuration Status
-----------	--------------------------------

Type choices, press Enter.

Type	► *LIN	*LIN, *CTL, *DEV
Configuration description . . .	► L41TR	Name, generic*, *ALL, *CMN...

F3=Exit F4=List F5=Refresh F11=Keywords F12=Previous
F13=How to use this display

Figure 305. Work with Communications Status Screen

Type the line description name in Figure 305 to work with line status.

Work with Configuration Status		System: RALYAS4A
Position to	Starting character(s)	
Type options, press Enter.		
1=Vary on 2=Vary off 3=Hold device 4=End recovery 5=Work with job		
6=Release device 7=Resume recovery		
Opt	Lin/Ctl/Dev/Mod	Status -----Job-----
1	L41TR	VARIED OFF
		More...
Parameters for options 1, 2, 3 or command		
====>		
F3=Exit F4=Prompt F5=Refresh F9=Retrieve F12=Previous		
F14=Work with lines		
(C) COPYRIGHT IBM CORP. 1980, 1988.		

Figure 306. Work with Communications Status Screen

Type option 1 to vary on the line in Figure 306.

CMNSTS	Communications Status	System: RALYAS4A
Select one of the following:		
1. Work with line status		
2. Work with controller status		
3. Work with device status		
70. Related commands		
Selection or command		
====> 2_		
F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support		
F16=System main menu		
(C) COPYRIGHT IBM CORP. 1980, 1988.		

Figure 307. Communications Status Screen

Select option 2 in Figure 307 to work with controller status.

Work with Configuration Status		System: RALYAS4A
Position to	Starting character(s)	
Type options, press Enter.		
1=Vary on 2=Vary off 3=Hold device 4=End recovery 5=Work with job		
6=Release device 7=Resume recovery		
Opt	Lin/Ctl/Dev/Mod	Status -----Job-----
1	TRCTLPS	VARIED OFF
		More...
Parameters for options 1, 2, 3 or command		
====>		
F3=Exit F4=Prompt F5=Refresh F9=Retrieve F12=Previous		
F14=Work with lines		
(C) COPYRIGHT IBM CORP. 1980, 1988.		

Figure 308. Work with Communications Status Screen

Select option 1 in Figure 308 to vary on the controller.

Work with Configuration Status				System: RALYAS4A
Position to		Starting character(s)		
Type options, press Enter.				
1=Vary on 2=Vary off 3=Hold device 4=End recovery 5=Work with job				
6=Release device 7=Resume recovery				
Opt	Lin/Ctl/Dev/Mod	Status	-----Job-----	
	L41TR	ACTIVE		
	TRCTLPS	ACTIVE	More...	
	RAOTNNB1	ACTIVE		
Parameters for options 1, 2, 3 or command				
==>				
F3=Exit F4=Prompt F5=Refresh F9=Retrieve F12=Previous				
F14=Work with lines				
(C) COPYRIGHT IBM CORP. 1980, 1988.				

Figure 309. Work with Communications Status Screen

If you select F5 to refresh the screen in Figure 306 on page 233 the token-ring line is ACTIVE and the controller is ACTIVE. Because we specified CP-CP session support and APPN *YES the device descriptions are automatically created, attached to the right controller and varied on. The refreshed screen is shown in Figure 309.

7.9 Activating communications on the S/370 Host for the PS/2

```

NCCF      N E T V I E W      RABAN WTCR21    05/31/89 16:38:30
* RABAN   V NET,ACT,ID=RAOL0020  ←-----
RABAN     IST097I VARY      ACCEPTED
RABAN     IST093I RAOL0020 ACTIVE
C RABAN   ►AOPNLIST RAOL0020 NONE
RABAN     IST097I DISPLAY  ACCEPTED
  
```

Figure 310. Activate Line for AS/400A

AS/400A is T2.1 node connected to the host via a SDLC leased line. Therefore to vary on the line we should issue the VTAM command "V NET,ACT,ID=RAOL0020".

```

NCCF      N E T V I E W      RABAN WTCR21    05/31/89 16:39:12
* RABAN   V NET,ACT,ID=RAOP1B,SCOPE=ALL ←-----
RABAN     IST097I VARY      ACCEPTED
RABAN     IST093I RAOP1B   ACTIVE
C RABAN   ►AOPNLIST RAOP1B NONE
RABAN     IST097I DISPLAY  ACCEPTED
  
```

Figure 311. Activate PU for the AS/400A

To vary on AS/400A PU enter the VTAM command "V NET,ACT,ID=RAOP1B,SCOPE=ALL".

```

NCCF      N E T V I E W      RABAN WTCR21    05/31/89 16:40:02
C RABAN   DISPLAY NET,ID=RAOP1B,SCOPE=ALL
RABAN     IST097I DISPLAY  ACCEPTED
' RABAN
IST075I   NAME = RAOP1B          , TYPE = PU_T2.1 ←-----
IST486I   STATUS= ACTIV          , DESIRED STATE= ACTIV
IST081I   LINE NAME = RAOL0020, LINE GROUP = RAOGSFL0, MAJNOD = RAONCP1
IST654I   I/O TRACE = OFF, BUFFER TRACE = OFF
IST355I   LOGICAL UNITS:
IST080I   RAOTNNB0 ACTIV          RAOTNNB1 ACT/S          RAOTNNB2 ACTIV
IST080I   RAOTNNB3 ACTIV          RAOTNNB4 ACTIV          RAOTNNB5 ACTIV
IST080I   RAOT1B01 ACTIV          RAOT1B02 ACTIV          RAOT1B03 ACTIV
IST080I   RAOT1B04 ACTIV          RAOT1B05 ACTIV          RAOT1B06 ACTIV
IST080I   RAOT1B07 ACTIV          RAOT1B08 ACTIV          RAOT1B09 ACTIV
IST080I   RAOT1B0A ACTIV          RAOT1B0B NEVAC          RAOT1B0C NEVAC
IST080I   RAOT1B0D NEVAC          RAOT1B0E ACTIV          RAOT1B0F ACTIV
IST080I   RAOT1B0G ACTIV          RAOT1B0H ACTIV          RAOT1B0I ACTIV
IST080I   RAOT1B0J ACTIV
IST314I   END
  
```

Figure 312. Display Status of the PU for the AS/400A

Figure 312 displays the status of the PU for AS/400A. Notice that the PU is seen as a T2.1 after activation and RAOTNNB1 (PS/2) is active and in session.


```

NCCF          N E T V I E W          RABAN WTCR21    06/12/89 13:10:00
C RABAN      DISPLAY NET,ID=RAOTNNB1,SCOPE=ALL
RABAN        IST097I DISPLAY ACCEPTED
' RABAN
IST075I NAME = RAOTNNB1          , TYPE = LOGICAL UNIT
IST486I STATUS= ACT/S          , DESIRED STATE= ACTIV
IST861I MODETAB=MTGS3X    USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=MODS361
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST081I LINE NAME = RAOL0020, LINE GROUP = RAOGSFLO, MAJNOD = RAONCP1
IST135I PHYSICAL UNIT = RAOP1B
IST082I DEVTYPE = INDEPENDENT LU
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST634I NAME      STATUS      SID      SEND RECV VR TP NETID
IST635I AS4B      ACTIV-S     CE773A1F55262F70      0 0 USIBMRA
IST635I AS4B      ACTIV-S     CE773A1F55262F71      0 0 USIBMRA
IST314I END

```

Figure 313. Display Status of the LU for the PS/2

Figure 313 displays the status of the LU for the PS/2. Notice the new device type of "independent LU". VTAM recognizes that it is an independent LU because of the LOCADDR=00 in the NCP major node.

If you look at IST635I you will see that this PS/2 LU (RAOTNNB1) has an active session with AS/400B LU (AS4B).

```

NCCF          N E T V I E W          RABAN WTCR21    06/12/89 13:10:54
C RABAN      DISPLAY NET,ID=AS4B,SCOPE=ALL
RABAN        IST097I DISPLAY ACCEPTED
' RABAN
IST075I NAME = AS4B          , TYPE = LOGICAL UNIT
IST486I STATUS= ACT/S          , DESIRED STATE= ACTIV
IST861I MODETAB=MTGS3X    USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=QPCSUPP
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST135I PHYSICAL UNIT = RAOTRPUZ
IST136I SWITCHED SNA MAJOR NODE = SWRAOTR
IST082I DEVTYPE = INDEPENDENT LU
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST634I NAME      STATUS      SID      SEND RECV VR TP NETID
IST635I RAOTNNB1  ACTIV-P     CE773A1F55262F70      0 0 USIBMRA
IST635I RAOTNNB1  ACTIV-P     CE773A1F55262F71      0 0 USIBMRA
IST314I END

```

Figure 314. Display Status of the LU for the AS/400A

Figure 314 displays the status of the LU for AS/400B. Notice the new device type of "independent LU". VTAM recognizes that it is an independent LU because of the LOCADDR=00 in the NCP major node.

If you look at IST635I you will see that AS/400B LU (AS4B) has an active session with the PS/2 LU (RAOTNNB1) and in this case the PS/2 is the primary LU.

7.10 Traces AS/400A to RAB to AS/400B

The following traces were taken on AS/400A using the trace facility. This trace displays both the XID3 exchanges and the BIND exchanges between AS/400A and the host. You will also see the exchanges being passed from AS/400A to AS/400B behind the S/370 subarea.

COMMUNICATIONS TRACE										Title: AS/400A-RAB-AS/400B		07/11/89 02:11:49		Page: 1	
Trace Description										AS/400A-RAB-AS/400B					
Line name										L24020					
Line protocol										SDLC					
Start Date/Time										07/11/89 02:07:03					
End Date/Time										07/11/89 02:11:46					
Bytes collected										12245					
Buffer size										3 1=128K, 2=256K, 3=2048K					
Data direction										3 1=Sent, 2=Received, 3=Both					
Stop on buffer full										N Y=Yes, N=No					
Format SNA data only										N Y=Yes, N=No					
Format RR, RNR commands										N Y=Yes, N=No					
Controller Name										*ALL *ALL, name					
COMMUNICATIONS TRACE										Title: AS/400A-RAB-AS/400B		07/11/89 02:11:49		Page: 2	
Record Number		Number of record in trace buffer (decimal)													
S/R		S=Sent R=Received M=Modem Change													
Data Length		Amount of data in record (decimal)													
Record Timer		Time stamp (100 millisecond resolution, hexadecimal)													
Record Status		Status of record													
Controller name		Name of controller associated with record													
Command		Command/Response information													
Number sent		Count of records sent													
Number received		Count of records received													
Poll/Final		ON=Poll for Commands, Final for Responses													
Commands/Responses:															

UI		Unnumbered Information													
SNRM		Set Normal Response Mode													
DISC		Disconnect/Request Disconnect													
XID		Exchange ID													
SNRME		Set Normal Response Mode Extended													
UA		Unnumbered Acknowledgment													
*****		Invalid Command/Response													
COMMUNICATIONS TRACE										Title: AS/400A-RAB-AS/400B		07/11/89 02:11:49		Page: 3	
Record	Data	Record	Record	Data	Controller	Number	Number	Poll/							
Number	S/R	Length	Status	Timer	Type	Name/Number	Command	Sent	Received	Final					
5	R	0	00000000	C0AF	/C4	XID				ON					
6	S	84	00000000	C0AF	/C4	XID				ON					
			Data												
														</	

Figure 315. AS/400A to Host XID3 Exchanges

COMMUNICATIONS TRACE Title: AS/400A-RAB-AS/400B 07/11/89 02:11:55 Page: 1

Trace Description : AS/400A-RAB-AS/400B
Line name : L24020
Line protocol : SDLC
Start Date/Time : 07/11/89 02:07:03
End Date/Time : 07/11/89 02:11:46
Bytes collected : 12245
Buffer size : 3 1=128K, 2=256K, 3=2048K
Data direction : 3 1=Sent, 2=Received, 3=Both
Stop on buffer full : N Y=Yes, N=No
Format SNA data only : Y Y=Yes, N=No
Format RR, RNR commands : N Y=Yes, N=No
Controller Name : *ALL *ALL, name
Record Number : Number of record in trace buffer (decimal)
S/R : S=Sent R=Received M=Modem Change
Controller name : Name of Controller associated with record
SNA Data : TH, RH and RU for record
TH : Transmission Header
RH : Request/Response Header
RU : Request/Response Unit

TH Parameter Descriptions:

FID : Format Identification
MPF : Mapping Field (segment of Basic Information Unit (BIU) - ONLY, FIRST, MIDDLE, LAST)
OAF : Origination Address Field
DAF : Destination Address Field
SNF : Sequence Number Field
DCF : Data Count Field
LA : Local Address
ODAI : OAF-DAF Assignor Indicator
EFI : Expedited Flow Indicator
LU : Logical Unit
SSCP : System Services Control Point
PU : Physical Unit

RH Parameter Descriptions:

REQ : Request
RSP : Response

RH Category Descriptions:

NC : Network Control
SC : Session Control
DFC : Data Flow Control
NC : Network Control
FMD : Function Management Data
FMH : Function Management Header

RH Indicators:

FI : Format Indicator
SDI : Sense Data Included Indicator
BCI : Begin Chain Indicator
ECI : End Chain Indicator
DR1 : Definite Response 1 Indicator
DR2 : Definite Response 2 Indicator
ERI : Exception Response Indicator
RTI : Response Type Indicator
QRI : Queued Response Indicator
EBI : End Bracket Indicator
CDI : Change Direction Indicator
PI : Pacing Indicator
BBI : Begin Bracket Indicator
CSI : Code Selection Indicator
EDI : Enciphered Data Indicator
PDI : Padded Data Indicator
CEBI : Conditional End Bracket Indicator
RLWI : Request Larger Window Indicator

Figure 316. AS/400A to Host BIND Exchanges

COMMUNICATIONS TRACE				Title: AS/400A-RAB-AS/400B	07/11/89 02:11:55	Page: 3
Record Number	S/R	Controller Name	Data Type	SNA Data: TH, RH, RU		
23	R	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=00, SNF'=02E6, EFI		
				RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
			RU Command	ACTPU		
			RU Data	110201050000000000	*.....	*
29	S	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=00, SNF'=02E6, EFI		
				RH : ('EB8000'X) RSP SC, FI, DR1		
			RU Command	ACTPU		
			RU Data	11114040404040404000000701000000000000	*..	*
37	R	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=00, SNF'=0001		
				RH : ('0B8000'X) REQ FMD, FI, BCI, ECI, DR1		
			RU Command	NMVT		
			RU Data	41038D000000000000218080049288001994ED00EC000000010000000000	*.....KH..M.....	*
				000004000A001400320064	*.....	*
41	S	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=00, SNF'=0001		
				RH : ('8F9000'X) RSP FMD, FI, SDI, DR1, RTI		
			Sense Code	00060000,		
			RU Command	NMVT		
			RU Data	41038D	*...	*
132	S	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=00, OAF'=02, SNF'=0000, EFI		
				RH : ('6B8100'X) REQ SC, FI, BCI, ECI, DR1, PI		
			RU Command	BIND		
			RU Data	31001307B0B051B3018085858001060200000000000001023400010E4E2	*.....EE.....US*	
				C9C2D4D9C14BD9C1D6E3D5D5C2F11D000902E2D5C1E2E5C3D4C71104E4E2	*IBMRA.RAOTNNB1...SNASVCMG..US*	
				C9C2D4D9C14BD9C1D6E3D5D5C2F10008C1E2F4C2404040406019CE773A1F	*IBMRA.RAOTNNB1..AS4B -.....*	
				55262F6A10E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C10E11F4E4E2C9C2D4D9	*.....USIBMRA.RALYAS4A..4USIBM*	
				C14BD7E2F240404040402B2A0202164614800110E4E2C9C2D4D9C14BD9C1	*A.PS2 .....USIBMRA.RA*	
				D3E8C1E2F4C112461080010BE4E2C9C2D4D9C14BD9C1C2002C0A0408E2D5	*LYAS4A.....USIBMRA.RAB.....SN*	
				C1E2E5C3D4C7	*ASVCMG	*
134	R	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=01, SNF'=0000, EFI		
				RH : ('830100'X) RSP FMD, PI		
			RU Data	007FFF	*..	*
137	R	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=00, SNF'=0000, EFI		
				RH : ('EB8000'X) RSP SC, FI, DR1		
			RU Command	BIND		
			RU Data	31001307B0B051B30080858580000002000000000000010234000001900	*.....EE.....	*
				0902E2D5C1E2E5C3D4C70005E4E2C9C2D4D9C14BC1E2F4C200002C0A0100	*..SNASVCMG..USIBMRA.AS4B.....*	
				40404040404040406019CE773A1F55262F6A10E4E2C9C2D4D9C14BD9C1D3	* -.....USIBMRA.RAL*	
				E8C1E2F4C1	*YAS4A	*
141	S	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=00, OAF'=02, SNF'=0001		
				RH : ('0A9500'X) REQ FMD, FI, BCI, DR1, ERI, RLWI, PI		
			RU Command			
			RU Data	180502FF0003D000000206F1090802D9E4E2E2C5D3D30000	*.....}....1...RUSSELL..	*
143	R	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=00, SNF'=0000, EFI		
				RH : ('830100'X) RSP FMD, PI		
			RU Data	000000	*...	*

Figure 317. AS/400A to Host BIND Exchanges


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213 S P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=00, OAF'=02, SNF'=0000, EFI
RU Data . . . . . : 000007 *...
218 S P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=00, OAF'=02, SNF'=0003
RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI *...
RU Data . . . . . : 0013D0010001000D104F000911656140C6D4E2 *...}.....|.... / FMS
228 R P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=00, SNF'=0002
RH : ('039120'X) REQ FMD, BCI, ECI, DR1, ERI, PI, CDI *...}.....
232 S P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=00, OAF'=02, SNF'=0000, EFI
RU Data . . . . . : 000007 *...
237 S P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=00, OAF'=02, SNF'=0004
RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI *...
239 R P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=00, SNF'=0003
RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI *...}.....|.... / QIWSFLR FMS
321 S P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=0000, EFI
RU Command . . . . . : BIND *...}.....
RU Data . . . . . : 31001307B08051B30180F7F78001060200000000000001023400010E4E2 *.....77..... .US*
C9C2D4D9C14BD9C1D6E3D5C2F11C000002D0D7C3E2E4D7D71104E4E2C9 *IBMRA.RAOTNNB1....QPCSUPP..USI*
C2D4D9C14BD9C1D6E3D5C2F10000C1E2F4C2404040406019CE773A1F55 *BMRA.RAOTNNB1..AS4B .....
262F6C10E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C10E11F4E4E2C9C2D4D9C1 *...USIBMRA.RALYAS4A..4USIBMRA*
4BD7E2F240404040402B2A0202164614800110E4E2C9C2D4D9C14BD9C1D3 *PS2 .....USIBMRA.RAL*
E8C1E2F4C112461080010E4E2C9C2D4D9C14BD9C1C2002C0A01087BC3D6 *YAS4A.....USIBMRA.RAB.....#CO*
D5D5C5C3E3 *NNECT
325 R P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=01, SNF'=0000, EFI
RU Command . . . . . : BIND
RU Data . . . . . : 31001307B08051B30080F7F78000000200000000000001023400001800 *.....77.....
0002D0D7C3E2E4D7D70D05E4E2C9C2D4D9C14BC1E2F4C200002C0A010840 *..QPCSUPP..USIBMRA.AS4B.....
404040404040406019CE773A1F55262F6C10E4E2C9C2D4D9C14BD9C1D3E8 *.....%USIBMRA.RALY*
COMMUNICATIONS TRACE Title: AS/400A-RAB-AS/400B 07/11/89 02:11:55 Page: 6
RU Data . . . . . : C1E2F4C1 *AS4A
329 S P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=0001
RU Command . . . . . : FMH- 5=230502F0803D000400430F0F0F5120002D9E4E2E2C5D3D3 *.....}. ..005...RUSSELL
0001D9E4E2E2C5D3D30000 *..RUSSELL..
RU Data . . . . . : 005912F5005512E2005112A020000510010000002300000000000000000 *...5...
00F3F1F9F74040C3F140404040000000000000000000000000000000000000000000 *..3197 C1 .....DUS*
C200F6F9F740F0F3F74040404040404040404040404040404040404040404040404040 *B.697 037 S2
331 R P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=01, SNF'=0000, EFI
RU Data . . . . . : 000008 *...
335 S P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=0002
RH : ('019520'X) REQ FMD, ECI, DR1, ERI, RLWI, PI, CDI *...
No RU data
337 R P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=01, SNF'=0000, EFI
RU Data . . . . . : 000040 *...
342 R P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=01, SNF'=0001
RU Data . . . . . : 004812A09000056001002000003C0000C9F9F0F2D9C1D3E8C1E2F4C2D9C1 *.....-.....I902RALYAS4BRA*
D6E3D5C5C2F1E2F263000214190002145700020000000000000000000000000000 *OTNNBIS2.....
00000000000000000000000000 *.....
346 S P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=0000, EFI
RU Data . . . . . : 000001 *...
353 S P24020D EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=0000
RU Data . . . . . : No RU data

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Figure 319. AS/400A to Host BIND Exchanges

7.11 Traces AS/400A to PS/2

The following traces were taken on AS/400A using the trace facility. This trace displays both the XID3 exchanges and the BIND exchanges between AS/400A and the PS/2. You will also see the exchanges being sent for AS/400B behind the S/370 subarea.

COMMUNICATIONS TRACE Title: AS/400A-PS/2 07/11/89 02:10:28 Page: 1

Trace Description : AS/400A-PS/2
Line name : L41TR
Line protocol : TRLAN
Start Date/Time : 07/11/89 02:08:21
End Date/Time : 07/11/89 02:10:25
Data direction : 3 1=Sent, 2=Received, 3=Both
Stop on buffer full : N Y=Yes, N=No
Format SNA data only : N Y=Yes, N=No
Format RR, RNR commands : N Y=Yes, N=No
S/R : S=Sent R=Received M=Modem Change
Data Length : Amount of data in record (decimal)
Record Timer : Time stamp (100 millisecond resolution, hexadecimal)
Controller name : Name of Controller associated with record
Command : Command/Response information
Number sent : Count of records sent
Number received : Count of records received
Poll/Final : ON=Poll for Commands, ON=Final for Responses
Destination MAC Address : Physical address of destination
Source MAC Address : Physical address of source
Frame Format : LLC (Logical Link Control) or MAC (Media Access Control)
DSAP : Destination Service Access Point (Logical address of destination)
SSAP : Source Service Access Point (Logical address of source)

Commands/Responses:

RR Receive Ready
RNR Receive Not Ready
UA Unnumbered Acknowledgment
TEST Test
XID Exchange ID
SABME Set Asynchronous Balanced Mode Extended

COMMUNICATIONS TRACE Title: AS/400A-PS/2 07/11/89 02:10:28 Page: 3

Record Number	S/R	Data Length	Record Timer	Data Type	Controller Name	Destination MAC Address	Source MAC Address	Frame Format	Command	Number Sent	Number Received	Page Poll/Final	DSAP	SSAP
1	R	34	1426			C00000000008	10005A2503C3	MAC						
				Data . . .		00226029082D000000000000082E000000000100060B00000000080210005A250374				*..				*
2	R	0	14CE			400010020001	400000000045	LLC	TEST			OFF	00	04
3	S	0	14CE			400000000045	400010020001	LLC	TEST			OFF	04	01
4	R	48	14CE	EBCDIC TRCTLPS		400010020001	400000000045	LLC	XID			OFF	04	04
				Data . . .		323000000000000B0800000000000000010B400007890000000002000E11F4E4E2C9C2D4D9C14BD9C1D6E3D5D5C2F1				*.....I.....*				*
5	S	0	14CF			400000000045	400010020001	LLC	XID			OFF	04	05
6	S	84	14CF	EBCDIC TRCTLPS		400000000045	400010020001	LLC	XID			OFF	04	04
				Data . . .		32540561507800000008C0000000000001010B500007CA0000000007000E11F4E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C10E09F7C1C1C1C1C1C5C21017F1161101130011F9F4F0F6C2F5F0F1F0F0F0F1F5F0F7F8				*.../&....{.....*				*
7	R	48	14CF			400010020001	400000000045	LLC	XID			OFF	04	05
				Data . . .		323000000000000B0800000000000000010B400007890000000002000E11F4E4E2C9C2D4D9C14BD9C1D6E3D5D5C2F1				*.....I.....*				*
8	S	84	14CF	EBCDIC TRCTLPS		400000000045	400010020001	LLC	XID			OFF	04	04
				Data . . .		32540561507800000008C0000000000001010B500007CA0000000007000E11F4E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C10E09F7C1C1C1C1C1C5C21017F1161101130011F9F4F0F6C2F5F0F1F0F0F0F1F5F0F7F8				*.../&....{.....&.....*				*
9	R	48	14CF			400010020001	400000000045	LLC	XID			OFF	04	05
				Data . . .		323000000000000B0800000000000000010B400007890000000002000E11F4E4E2C9C2D4D9C14BD9C1D6E3D5D5C2F1				*.....I.....*				*
10	S	0	14CF	EBCDIC TRCTLPS		400000000045	400010020001	LLC	SABME			OFF	04	04
11	R	0	14CF			400010020001	400000000045	LLC	UA			OFF	04	05

Figure 321. AS/400A to PS/2 XID3 Exchanges


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COMMUNICATIONS TRACE      Title: AS/400A-PS/2      07/11/89 02:11:09      Page: 1
Trace Description . . . . . : AS/400A-PS/2
Line name . . . . . : L41TR
Line protocol . . . . . : TRLAN
Start Date/Time . . . . . : 07/11/89 02:08:21
End Date/Time . . . . . : 07/11/89 02:10:25
Bytes collected . . . . . : 241368
Buffer size . . . . . : 3      1=128K, 2=256K, 3=2048K
Data direction . . . . . : 3      1=Sent, 2=Received, 3=Both
Stop on buffer full . . . . . : N      Y=Yes, N=No
Format SNA data only . . . . . : Y      Y=Yes, N=No
Format RR, RNR commands . . . . . : N      Y=Yes, N=No
Controller Name . . . . . : *ALL      *ALL, name
COMMUNICATIONS TRACE      Title: AS/400A-PS/2      07/11/89 02:11:09      Page: 2

Record Number . . . . . Number of record in trace buffer (decimal)
S/R . . . . . S=Sent R=Received M=Modem Change
Controller name . . . . . Name of Controller associated with record
SNA Data . . . . . TH, RH and RU for record
TH . . . . . Transmission Header
RH . . . . . Request/Response Header
RU . . . . . Request/Response Unit
TH Parameter Descriptions:
FID . . . . . Format Identification
MPF . . . . . Mapping Field (segment of Basic Information
Unit (BIU) - ONLY, FIRST, MIDDLE, LAST)
OAF . . . . . Origination Address Field
DAF . . . . . Destination Address Field
SNF . . . . . Sequence Number Field
DCF . . . . . Data Count Field
LA . . . . . Local Address
ODAI . . . . . OAF-DAF Assignor Indicator
EFI . . . . . Expedited Flow Indicator
LU . . . . . Logical Unit
SSCP . . . . . System Services Control Point
PU . . . . . Physical Unit
RH Parameter Descriptions:
REQ . . . . . Request
RSP . . . . . Response
RH Category Descriptions:
NC . . . . . Network Control
SC . . . . . Session Control
DFC . . . . . Data Flow Control
NC . . . . . Network Control
FMD . . . . . Function Management Data
FMH . . . . . Function Management Header
RH Indicators:
FI . . . . . Format Indicator
SDI . . . . . Sense Data Included Indicator
BCI . . . . . Begin Chain Indicator
ECI . . . . . End Chain Indicator
DR1 . . . . . Definite Response 1 Indicator
DR2 . . . . . Definite Response 2 Indicator
ERI . . . . . Exception Response Indicator
RTI . . . . . Response Type Indicator
QRI . . . . . Queued Response Indicator
EBI . . . . . End Bracket Indicator
CDI . . . . . Change Direction Indicator
PI . . . . . Pacing Indicator
BBI . . . . . Begin Bracket Indicator
CSI . . . . . Code Selection Indicator
EDI . . . . . Enciphered Data Indicator
PDI . . . . . Padded Data Indicator
CEBI . . . . . Conditional End Bracket Indicator
RLWI . . . . . Request Larger Window Indicator

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Figure 322. AS/400A to PS/2 BIND Exchanges

COMMUNICATIONS TRACE				Title: AS/400A-PS/2	07/11/89 02:11:09	Page: 3
Record Number	S/R	Controller Name	Data Type	SNA Data: TH, RH, RU		
14	R	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=04, SNF'=0000, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
			RU Command	BIND		
			RU Data	31001307B0B051B101008585800106020000000000001023000010E4E2 *.....EE.....US* C9C2D4D9C14B09C1D6E3D5D5C2F11D000902E2D5C1E2E5C3D4C71104E4E2 *IBMRA.RAOTNNB1...SNASVCMG..US* C9C2D4D9C14B09C1D6E3D5D5C2F10008D9C1D6E3D5D5C2F0 *IBMRA.RAOTNNB1..RAOTNNB0 *		
16	S	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=04, OAF'=01, SNF'=0000, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
			RU Command	BIND		
			RU Data	31001307B0B051B1010785858701060200000000000010234000001D00 *.....EEG.....* 0902E2D5C1E2E5C3D4C71105E4E2C9C2D4D9C14B09C1D6E3D5D5C2F00000 *..SNASVCMG..USIBMRA.RAOTNNB0..*		
18	R	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=04, SNF'=0001 RH : ('0A9100'X) REQ FMD, FI, BCI, DR1, ERI, PI		
			RU Command	FMH- 5=180502FF0003D0000000206F1090802D9E4E2E2C5D3D30000 *.....}....1...RUSSELL.. *		
20	R	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=04, SNF'=0002 RH : ('019020'X) REQ FMD, ECI, DR1, ERI, CDI		
			RU Data	00181210020000000002000200000000708D7C3E2E4D7D7 *.....QPCSUPP *		
21	S	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=04, OAF'=01, SNF'=0000 RH : ('830100'X) RSP FMD, PI		
			No RU data			
24	S	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=04, OAF'=01, SNF'=0001 RH : ('039101'X) REQ FMD, BCI, ECI, DR1, ERI, PI, CEBI		
			RU Data	001812100A0000000002000200000000708D7C3E2E4D7D7 *.....QPCSUPP *		
26	R	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=04, SNF'=0001 RH : ('830100'X) RSP FMD, PI		
			No RU data			
27	R	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=04, SNF'=0000, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
			RU Command	UNBIND		
			RU Data	320F *		
30	S	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=04, OAF'=01, SNF'=0000, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
			RU Command	UNBIND		
			RU Data	32 *		
32	R	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=04, SNF'=0000, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
			RU Command	BIND		
			RU Data	31001307B0B051B101008585800106020000000000001023000010E4E2 *.....EE.....US* C9C2D4D9C14B09C1D6E3D5D5C2F11D000902E2D5C1E2E5C3D4C71104E4E2 *IBMRA.RAOTNNB1...SNASVCMG..US* C9C2D4D9C14B09C1D6E3D5D5C2F10008C1E2F4C240A0A040 *IBMRA.RAOTNNB1..AS4B *		
34	S	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=04, OAF'=01, SNF'=0000, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
			RU Command	BIND		
			RU Data	31001307B0B051B1013F85858F010602000000000000010234000001900 *.....EE.....* 0902E2D5C1E2E5C3D4C70D05E4E2C9C2D4D9C14BC1E2F4C20000 *..SNASVCMG..USIBMRA.AS4B.. *		
36	R	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=04, SNF'=0001 RH : ('0A9100'X) REQ FMD, FI, BCI, DR1, ERI, PI		
			RU Command	FMH- 5=180502FF0003D0000000206F1090802D9E4E2E2C5D3D30000 *.....}....1...RUSSELL.. *		
38	R	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=04, SNF'=0002 RH : ('019020'X) REQ FMD, ECI, DR1, ERI, CDI		
			RU Data	00181210020000000002000200000000708D7C3E2E4D7D7 *.....QPCSUPP *		

Figure 323. AS/400A to PS/2 BIND Exchanges

40	S	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=04, OAF'=01, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI No RU data	
42	S	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=04, OAF'=01, SNF'=0001 RH : ('039101'X) REQ FMD, BCI, ECI, DR1, ERI, PI, CEBI RU Data : 001812100A000000000020002000000007D8D7C3E2E4D7D7 *.....QPCSUPP	*
44	R	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=04, SNF'=0001 RH : ('830100'X) RSP FMD, PI No RU data	
45	R	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=04, SNF'=0000, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1	
		RU Command	UNBIND		
		RU Data	320F		*..
48	S	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=04, OAF'=01, SNF'=0000, EFI RH : ('EB8000'X) RSP SC, FI, DR1	
		RU Command	UNBIND		
		RU Data	32		*
50	R	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0000, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1	
		RU Command	BIND		
		RU Data	31001307B0B051B10700F7F78007060200000000000001023000010E4E2 *.....77.....US* C9C2D4D9C14BD9C1D6E3D5D5C2F11C000802D8D7C3E2E4D7D71104E4E2C9 *IBMRA.RAOTNNB1....QPCSUPP..USI* C2D4D9C14BD9C1D6E3D5D5C2F10008D9C1D6E3D5D5C2F0 *BMRA.RAOTNNB1..RAOTNNB0	*	
52	S	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0000, EFI RH : ('EB8000'X) RSP SC, FI, DR1	
		RU Command	BIND		
		RU Data	31001307B0B051B10700F7F780070602000000000000010234000001C00 *.....77G.....* 0802D8D7C3E2E4D7D71105E4E2C9C2D4D9C14BD9C1D6E3D5D5C2F00000 *..QPCSUPP..USIBMRA.RAOTNNB0..*	*	
54	R	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0001 RH : ('0A9100'X) REQ FMD, FI, BCI, DR1, ERI, PI	
		RU Command	FMH- 5=230502FF0003D0000000430F0F1F9120802D9E4E2E2C5D3D3 *.....)....019...RUSSELL 0801D9E4E2E2C5D3D30000 *..RUSSELL..	*	
56	R	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0002 RH : ('019020'X) REQ FMD, ECI, DR1, ERI, CDI	
		RU Data	002B000100010025104100071147D8D7C30006116DC6E200141404141900 *..).....QPC..._FS.....* 02145700021463000214650002 *.....	*	
58	S	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0000 RH : ('830100'X) RSP FMD, PI No RU data	
COMMUNICATIONS TRACE				Title: AS/400A-PS/2	07/11/89 02:11:09
Record	Controller	Data			Page: 5
Number	S/R	Name	Type	SNA Data: TH, RH, RU	
60	S	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0001 RH : ('039120'X) REQ FMD, BCI, ECI, DR1, ERI, PI, CDI RU Data : 0031D0030001002B144300071147D8C1E2000C116DD9C1D3E8C1E2F4C100 *..).....QAS..._RALYAS4A.* 14140414650002146300021419000214570002 *.....	*
62	R	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0003 RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI	
64	S	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0002 RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI RU Data : 001AD00100010014104F0010116561D8C9E6E2C6D3D940C6D4E2 *..).....[....]/QIWSFLR FMS	*
66	R	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=0000, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1 RU Command : BIND RU Data : 31001307B0B051B10700F7F78007060200000000000001023000010E4E2 *.....77.....US* C9C2D4D9C14BD9C1D6E3D5D5C2F11C000802D8D7C3E2E4D7D71104E4E2C9 *IBMRA.RAOTNNB1....QPCSUPP..USI* C2D4D9C14BD9C1D6E3D5D5C2F10008C1E2F4C240404040 *BMRA.RAOTNNB1..AS4B	*
68	S	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=01, SNF'=0000, EFI RH : ('EB8000'X) RSP SC, FI, DR1	
		RU Command	BIND		
		RU Data	31001307B0B051B1073FF7F7BF070602000000000000010234000001800 *.....77.....* 0802D8D7C3E2E4D7D70D05E4E2C9C2D4D9C14BC1E2F4C20000 *..QPCSUPP..USIBMRA.AS4B..*	*	
70	R	TRCTLPS	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=0001 RH : ('0A9100'X) REQ FMD, FI, BCI, DR1, ERI, PI	
		RU Command	FMH- 5=230502FF0003D0000000430F0F1F9120802D9E4E2E2C5D3D3 *.....)....019...RUSSELL 0801D9E4E2E2C5D3D30000 *..RUSSELL..	*	

Figure 324. AS/400A to PS/2 BIND Exchanges

```

72 R TRCTLPS EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=0002
RH : ('019020'X) REQ FMD, ECI, DR1, ERI, CDI
RU Data . . . . . : 002B000100010025104100071147D08D7C30006116DC6E200141404141900 *..}.....QPC..._FS.....*
02145700021463000214650002 *.....*

74 S TRCTLPS EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=01, SNF'=0000, EFI
RH : ('830100'X) RSP FMD, PI
No RU data

78 S TRCTLPS EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=01, SNF'=0001
RH : ('039120'X) REQ FMD, BCI, ECI, DR1, ERI, PI, CDI
RU Data . . . . . : 0031D0030001002B144300071147D08C1E2000C116DD9C1D3E8C1E2F4C200 *..}.....QAS..._RALYAS4B.*
14140414650002146300021419000214570002 *.....*

80 R TRCTLPS EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=0003
RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI
RU Data . . . . . : 0013D0010001000D104F000911656140C6D4E2 *..}.....|.... / FMS *

82 S TRCTLPS EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=01, SNF'=0002
RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI
RU Data . . . . . : 0010D0020001000A124B000611490000 *..}.....*

84 R TRCTLPS EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=0004
RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI
RU Data . . . . . : 001AD00100010014104F0010116561D8C9E6E2C6D3D940C6D4E2 *..}.....|.... / QIWSFLR FMS *

86 S TRCTLPS EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=01, SNF'=0003
RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI
RU Data . . . . . : 0010D0020001000A124B000611490000 *..}.....*

88 R TRCTLPS EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0004
RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI
RU Data . . . . . : 0025D00410001001F102C0010116561D8C9E6E2C6D3D940C6D4E2000B1136 *..}..... / QIWSFLR FMS....*
450B944B2A9B4D0018D0061000200151010000B1136450B944B2A9B4D0000 *..M...(..) / .....M...(..)*
114E14190046D006100030040100A000B1136450B944B2A9B4D00130027D7 *+..... / .....M...(..)P*
C3E2E4D7C4E34B6F6F6F40C6D4E200051133F000051132F100141102113A *CSUPDT.??? FMS....0....1.....*
110B11661194113211331110110E0015D00610004000F1004000B1136450B *.....M..... / .....*
944B2A9B4D0015D0010005000F102D000B1136450B944B2A9B4D *M...(..).....M...(..)*

90 S TRCTLPS EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0003
RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI
RU Data . . . . . : 0010D00420001000A124B0006114900000010D0420002000A124B00061149 *..}.....}.....*
00000055D0430003004F14240012113AF1F9F8F9F0F6F3F0F0F6F1F6F0F0 *..}.....|.....19890630061600*
0008110B0000361100051166F100051194F100051132F000051133F00006 *.....1...M1....0....0...*
111014650017110ED8C9E6E2C6D3D961D7C3E2E4D7C4E34BC5E7C50010D0 *.....QIWSFLR/PCSUPDT.EXE...}*
420004000A124B0006114900000010D0020005000A124B000611490000 *.....}.....*

92 R TRCTLPS EBCDIC TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=01, SNF'=0005
RH : ('039020'X) REQ FMD, BCI, ECI, DR1, ERI, CDI
RU Data . . . . . : 002CD00100010026104D001C110E61D8C9E6E2C6D3D961D7C3E2E4D7C4E3 *..}.....(.... / QIWSFLR/PCSUPDT*
4BC5E7C540C6D4E200061129142C *..EXE FMS.....*

```

Figure 325. AS/400A to PS/2 BIND Exchanges

8.0 Scenario 5: PS/2 (OS2/EE) -- AS/400A -- S/370 --AS/400B

8.1 Environment Tested

In this chapter we will describe the definitions required to connect a PS/2 with OS/2 EE 1.2 (5250 WSF) to AS/400A via a token-ring. We have already discussed how to connect AS/400A and AS/400B to the S/370 subarea network in Chapter 5.0, "Scenario 2: AS/400A, AS/400B and PS/2 Adjacent to the Host" on page 99 so please refer to that chapter for detailed information and definitions.

We will also describe how the PS/2 with OS/2 EE 1.2 (5250 WSF) can establish sessions with both AS/400A and AS/400B which are situated on either side of an S/370 subarea network.

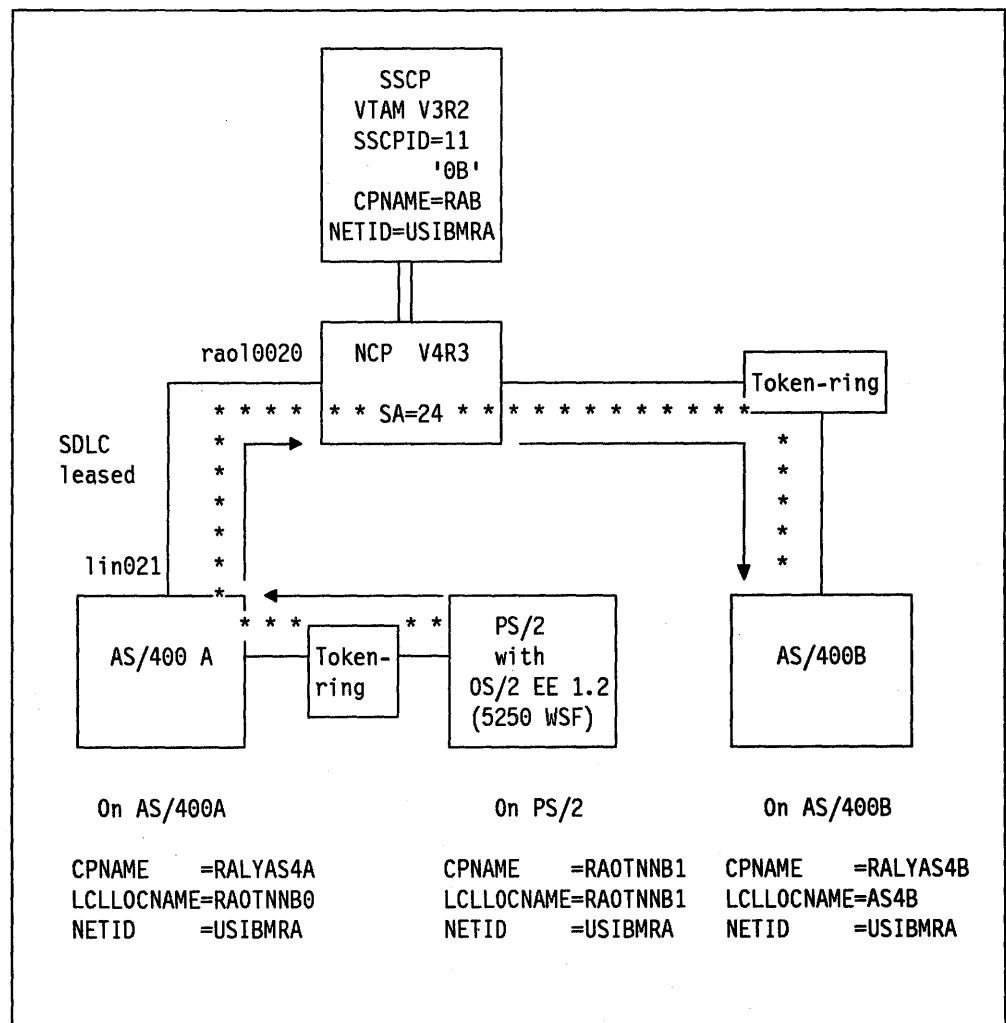


Figure 326. Scenario 5

8.2 Definitions on AS/400A (RALYAS4A) for PS/2 (RAOTNNB1)

When you are going to connect an PS/2 to AS/400A via a token-ring you are required to perform the following steps:

- Check the network attributes
- Create a line description from AS/400A to the PS/2
- Create an APPC controller description for the PS/2
- Configure APPN remote and local location lists
- Create a mode entry.

8.2.1 Network Attributes

The network attributes contain the AS/400's local system values for APPN. You can display these attributes by using the DSPNETA command or by going to menu "NETWORK".

MAIN

AS/400 Main Menu

System: RALYAS4A

Select one of the following:

1. User tasks
2. Office tasks
3. General system tasks
4. Files, libraries, and folders
5. Programming
6. Communications
7. Define or change the system
8. Problem handling
9. Display a menu
90. Sign off

Selection or command
==> dspneta

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
F23=Set initial menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 327. AS/400 Main Menu Screen

Type DSPNETA to display the network attributes.

Display Network Attributes		System: RALYAS4A
Current system name	:	RALYAS4A
Pending system name	:	
Local network ID	:	USIBMRA
Local control point name	:	RALYAS4A
Default local location	:	RALYAS4A
Default mode	:	MODS361
Maximum number of conversations for a remote location	:	64
APPN node type	:	*NETNODE
Maximum number of intermediate sessions	:	200
Route addition resistance	:	128
Server network ID/control point name	:	
		More...
Press Enter to continue.		
F3=Exit F12=Previous		

Figure 328. Display Network Attributes Screen

Notice we have defined the local control point name, local network ID, default location name and APPN node type. You can change these parameters by the CHGNETA command or by taking option 2 from the Network menu.

Display Network Attributes		System: RALYAS4A
Alert status	:	*UNATTEND
Alert primary focal point	:	*NO
Alert default focal point	:	*NO
Alert logging status	:	*ALL
Alert controller description	:	
Message queue	:	QSYSOPR
Library	:	QSYS
Output queue	:	QPRINT
Library	:	QGPL
Job action	:	*FILE
Maximum hop count	:	16
DDM request access	:	*OBJAUT
PC Support request access	:	*OBJAUT
Press Enter to continue.		
F3=Exit F12=Previous		

Figure 329. Display Network Attributes Screen (continued)

8.2.2 Create Line Description

The first step in defining the PS/2 to AS/400A is to create the line description. You can do this by either following the screens documented or by using the CL command CRTLINTRN.

```
MAIN                      AS/400 Main Menu                      System:  RALYAS4A

Select one of the following:

    1. User tasks
    2. Office tasks
    3. General system tasks
    4. Files, libraries, and folders
    5. Programming
    6. Communications
    7. Define or change the system
    8. Problem handling
    9. Display a menu

    90. Sign off

Selection or command
====> 6

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F23=Set initial menu

(C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 330. AS/400 Main Menu Screen

Select option 6 in Figure 330 to go to the Communications screen.

```
CMN                      Communications                      System:  RALYAS4A

Select one of the following:

    1. Communication status
    2. Messages
    3. Remote jobs
    4. Configure communications
    5. Network management
    6. Network configuration
    7. Verify communications
    8. Send or receive files
    9. Jobs

    70. Related commands

Selection or command
====> 4

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 331. Communications Screen

Select option 4 in Figure 331 to configure communications.

CFGCMN	Configure Communications and Remote Hardware	System: RALYAS4A
--------	--	------------------

Select one of the following:

1. Lines
2. Communications controllers
3. Work station controllers
4. Communications devices
5. Printers
6. Display stations
7. Modes
8. Classes-of-service
9. Configure address and location lists

Selection or command
 ==> 1

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
 F16=System main menu

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Figure 332. Configure Communications and Remote Hardware Screen

Select option 1 in Figure 332 to define your line description.

Work with Line Descriptions		System: RALYAS4A
-----------------------------	--	------------------

Position to Starting character(s)

Type options, press Enter.
 2=Change 3=Copy 4=Delete 5=Display 6=Print

Opt	Line	Type	Text
-----	------	------	------

More...

Parameters for option 2 or command
 ==>

F3=Exit F4=Prompt F5=Refresh F6=Create F9=Retrieve F12=Previous
 F14=Work with status

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 333. Work with Line Descriptions Screen

Select option F6 in Figure 333 to create the line description.

Create Line Description		
-------------------------	--	--

Type choices, press Enter.

New line description	L41TR	Name
----------------------	-------	------

Line type	*TRLAN	*ASYNC=Asynchronous communications *BSC=Binary synchronous communications *SDLC=Synchronous data link control *TDL=Twinsaxial data link control *TRLAN=Token-Ring local area network *X25=X.25 communications network
---------------------	--------	--

F3=Exit F12=Previous

Figure 334. Create Line Description Screen

The line type we are using is *TRLAN.

```

CTRLINTRN          Create Line Desc (Token-Ring)

Type choices, press Enter.

Line description . . . . . ► L41TR          Name
Resource name . . . . . lin041             Name
Online at IPL . . . . . *YES               *YES, *NO
Vary on wait . . . . . *NOWAIT             *NOWAIT, 15-180 (1 second)
Maximum controllers . . . . . 40            1-256
Maximum frame size . . . . . 1994           265, 521, 1033, 1994
Local adapter address . . . . . 400010020001 400000000000-7FFFFFFF...
Exchange identifier . . . . . *SYSGEN        05600000-056FFFFF, *SYSGEN
SSAP list:
  Source Service Access Point . *SYSGEN      *SYSGEN, 04, 08, 0C, 10...
    + for more values
Text 'description' . . . . . Token-Ring Line Description
F3=Exit  F4=List  F5=Refresh  F10=Additional parameters  F11=Keywords
F12=Previous  F13=How to use this display

```

Figure 335. Create Line Description (TRLAN) Screen

The resource name is the name of the physical communications port on the AS/400. It can be found by executing the command WRKHDWPRD and taking the option to work with your rack configuration.

The local token-ring adapter address of AS/400A is 400010020001.

Press Enter to create your line description. It will return you to the "Work with line descriptions" screen.

8.2.3 Create APPC Controller Description

Now you must create an APPC controller description which describes the PS/2 you are connecting to. Again, you can follow the screens or enter the CL command CRTCTLAPPC.

```
CFGCMN          Configure Communications and Remote Hardware
                                     System:  RALYAS4A

Select one of the following:

    1. Lines
    2. Communications controllers
    3. Work station controllers
    4. Communications devices
    5. Printers
    6. Display stations
    7. Modes
    8. Classes-of-service
    9. Configure address and location lists

Selection or command
===> 2

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 336. Configure Communications and Remote Hardware Screen

Select option 2 in Figure 336 to configure your APPC controller.

```
Work with Controller Descriptions
                                     System:  RALYAS4A

Position to . . . . . Starting character(s)

Type options, press Enter.
  2=Change  3=Copy  4=Delete  5=Display  6=Print

Opt  Controller  Type  Text
   QESCTL      *HOST
   QTICTL      *HOST

Parameters for option 2 or command
===>

F3=Exit  F4=Prompt  F5=Refresh  F6=Create  F9=Retrieve  F12=Previous
F14=Work with status

(C) COPYRIGHT IBM CORP. 1980, 1988.
```

Figure 337. Work with Controller Descriptions Screen

Select F6 to create your APPC controller description.

Create Controller Description		
Type choices, press Enter.		
New controller description	TRCTLPSOS2	Name
Controller type/class	*APPC	*APPC=Advanced program-to-program communications *ASYN=Asynchronous communications *BSC=Binary synchronous communications *FNC=Finance *HOST=SNA host
F3=Exit F12=Previous		

Figure 338. Create Controller Description Screen

We will be defining *APPC as our controller type as we will be communicating to AS/400B.

CRTCTLAPPC Create Ctl Desc (APPC)		
Type choices, press Enter.		
Controller description	▶ TRCTLPSOS2	Name
Link type	▶ *TRLAN	*SDLC, *TRLAN, *X25
Online at IPL	*YES	*YES, *NO
APPN capable	*YES	*YES, *NO
Switched line list	▶ L41TR	Name
+ for more values		
Maximum frame size	*LINKTYPE	*LINKTYPE, 265, 521, 1033...
Remote network identifier	▶ USIBMRA	Name, *NETATR, *NONE
Remote control point name	▶ PS2	Name
SSCP identifier	▶	050000000000-05FFFFFFFF
Initial connection	*ANS	*DIAL, *ANS
TRLAN remote adapter address	▶ 400000001111	000000000001-FFFFFFFF
APPN CP session support	*NO	*YES, *NO
APPN node type	*LENNODE	*ENDNODE, *LENNODE...
APPN transmission grp number	1	1-20, *CALC
		More...
F3=Exit F4=List F5=Refresh F11=Keywords F12=Previous F13=How to use this display		

Figure 339. Create Controller Description (APPC) Screen

In Figure 339 we will be defining "APPN capable" as *YES. The APPC device descriptions will be automatically created, varied on and attached to the right controller using the information defined in the network attributes, the associated mode description, the location list and the application program. It also means that the local system will appear as an End Node or Network Node to the adjacent system.

We will use the switched line list name to the token-ring name we have just created.

The token-ring adapter address of the PS/2 is 400000001111.

Press Enter to create your APPC controller description.

8.2.4 Configure APPN Remote and Local Location List

Since we defined our APPC controller with APPN(*YES) the device descriptions will be automatically created. After the automatic creation of the devices the AS/400 will vary them on and attach them to the correct controller in the following situations.

- When a session is requested and the route chosen and the controller description doesn't already have a device description with the specified remote location name, remote NETID and local location name defined.
- When a BIND is received for a local location and the controller description doesn't already have a device description with the specified remote location name, remote NETID and local location name defined.

The AS/400A, in this scenario, doesn't require the remote location of the PS/2 to be defined as the PS/2 will always be initiating the sessions.

8.2.5 Create Mode Description

The mode description describes the session characteristics and number of sessions that will be used to negotiate the allowable values between the local and remote locations. A mode with the same name must exist at both end points. There must also be a mode entry with the same name in VTAM/NCP.

This mode description QPCSUPP is created automatically when AS/400 PC Support is installed on AS/400A and must be used with AS/400 PC Support.

In Figure 340 the mode characteristics of QPCSUPP are shown.

Display Mode Description		
Mode description name	MODD	QPCSUPP
Class-of-service	COS	#CONNECT
Maximum number of sessions	MAXSSN	64
Maximum conversations	MAXCNV	64
Locally controlled sessions	LCLCTLSSN	0
Pre-established sessions	PREESTSSN	0
Inbound pacing value	INPACING	7
Outbound pacing value	OUTPACING	7
Max length of request unit	MAXLENRU	2048
Text	TEXT	AS/400 PC Support mode entr
y		
Press Enter to continue.		
F3=Exit F12=Previous		

Figure 340. Display Mode Descriptions Screen

The parameters defined here must match those defined on the remote location.

8.3 Relationship between AS/400A and the PS/2

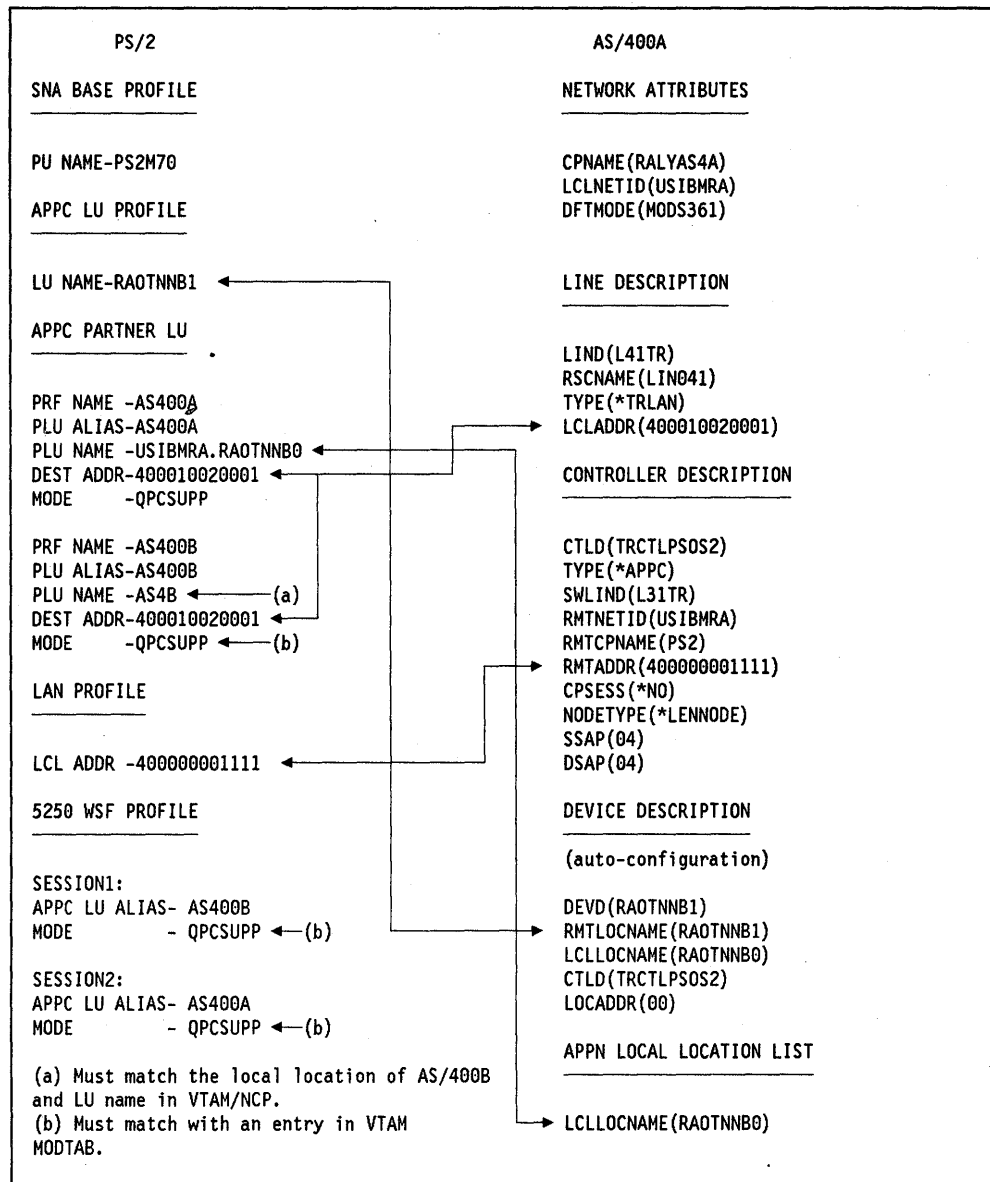


Figure 341. Relationship between AS/400A and PS/2

8.4 Definitions on the AS/400A (RALYAS4A) to Host

When you are going to connect AS/400A as an APPN node to an S/370 subarea to support independent LUs you are required to perform the following steps:

- Check the network attributes
- Create a line description from AS/400A to VTAM/NCP
- Create a host controller description for the S/370 host
- Configure APPN remote and local location list
- Create a mode entry.

We have already defined the definitions required to connect AS/400A to the host. You can refer to this information in Chapter 5.0, "Scenario 2: AS/400A, AS/400B and PS/2 Adjacent to the Host" on page 99.

8.5 Definitions on AS/400 B (RALYAS4B) to Host

When you are going to connect AS/400B as an APPN node to an S/370 subarea to support independent LUs you are required to perform the following steps:

- Check the network attributes
- Create a line description from the AS/400B to VTAM/NCP
- Create a host controller description for the S/370 host
- Configure APPN remote and local location lists
- Create a mode entry.

We have already defined the definitions required to connect AS/400B to the host. You can refer to this information in Chapter 5.0, "Scenario 2: AS/400A, AS/400B and PS/2 Adjacent to the Host" on page 99.

8.6 Definitions on the PS/2 (RAOTNNB1)

In order to configure the PS/2 with OS/2 EE 1.2 for 5250 workstation sessions, we have to customize the configuration file QPCSCFG in the following way:

- Modify Workstation Profile
- Modify SNA Feature Profile
- Modify LAN Feature Profile
- Modify 5250 Workstation Feature Profile.

For additional information you can refer to *IBM Operating System/2 Extended Edition Version 1.2 User's Guide*.

8.6.1 Modify Workstation Profile

From the Communications Configuration Menu in Figure 342 we modified the following profiles.

Verify Exit	F1=Help
<p style="text-align: center;">Communication Configuration Menu</p> <p>Configuration file name : QPCSCFG Configuration file status : Verified</p> <p>Press F10 to go to the action bar or select the type of profile you want to configure</p> <p>▶ 1. Workstation profile (and auto-start options)...</p> <p>2. Asynchronous feature profiles 3. 3270 feature profiles</p> <p>▶ 4. SNA feature profiles 5. Server-Requester Programming Interface (SRPI) profiles</p> <p>▶ 6. LAN feature profiles ▶ 7. 5250 Work Station Feature profiles 8. X.25 feature profiles</p> <p>9. Configuration file utilities</p>	

Figure 342. OS/2 Communication Configuration Menu Screen

WORKSTATION PROFILE (Option 1)		
Autostart options:		
Emulator to start: 5250 WSF		
Services to load: SNA/APPD		
SNA FEATURE PROFILES (Option 4)		
SNA Base Profile(1):	PU Name	PS2M70
	Network Name	
DLC IBM TOKEN-RING (2):	C\SM LAN Id	ITSCRAL
	LOADDLC	YES
APPC LU (3):	Profile Name	QPCS
	LU Alias	QPCS
	LU Name	RAOTNNB1
	LU Session Limit	128
APPC Partner LU (4):	Profile Name	AS400A
	Partner LU Alias	AS400A
	Qualified PLU Name	USIBMRA.RAOTNNB0
	LU Alias	QPCS
	Destination Addr	400010020001
	PLU Session Limit	64
	Mode Name	QPCSUPP
	Init. Sess.Limit	QPCSUPP
	Profile Name	AS400B
	Partner LU Alias	AS400B
	Qualified PLU Name	.AS4B
	LU Alias	QPCS
	Destination Addr	400010020001
	PLU Session Limit	64
	Mode Name	QPCSUPP
	Init. Sess.Limit	QPCSUPP
APPC Trsm. Serv. (5):	Profile Name	QPCSUPP
	Session Limit	64
APPC Init. Sess. (6):	Profile Name	QPCSUPP
LAN FEATURE PROFILES (Option 6)		
Use Locally Administered Address		400000001111
5250 WSF PROFILES (Option 7)		
Terminal (1):		WSFTERM1
Specify APPC LU Alias (3):		QPCS
Session Assignments (4):	5250WSF Prf.Name	WSFTERM1
	APPC LU Alias	AS400B
	APPC Mode Name	QPCSUPP
	Session ID	A
	5250WSF Prf.Name	WSFTERM1
	APPC LU Alias	AS400A
	APPC Mode Name	QPCSUPP
	Session ID	B

Figure 343. OS/2 Communications Manager Configuration Summary

In Figure 343 we configured the workstation profile so that when we start the Communications Manager we will automatically start the 5250 WSF emulator and load the SNA/APPD services.

We need SNA/APPD services since the 5250 Workstation application uses an APPC session between an AS/400 and a PS/2 running OS/2 EE 1.2.

8.6.2 Modify SNA Feature Profiles

In Figure 343 on page 261 we configured the following profiles:

- **SNA Base profile**

The PU name is used in error logs and network management alerts to identify the PS/2. This name should be unique within the network. We defined the PU name to be PS2M70.

- **DLC profiles**

In order to use a token-ring connection to AS/400A, we define a token-ring DLC adapter.

The C/SM LAN ID identifies the particular LAN that this adapter is a member of. We have defined this ID to be ITSCRAL.

- **APPC Logical Unit (LU) Profiles**

The local APPC LU profiles identify the PS/2 to different networks. Each profile matches a specific configuration. For this scenario we use the profile QPCS.

The LU alias is the same name as the APPC LU profile name and is used to specify the local partner in an APPC session. For this scenario we define RAO TNB1 as the LU name which must match the LU name in VTAM/NCP.

The LU session limit specifies the maximum number of sessions between the local LU and all partners LUs. This value must be greater than or equal to the sum of all the partner LU session limits that are configured with this LU. We have defined the LU session limit as 128.

- **APPC Partner Logical Unit (LU) Profiles**

These APPC partner LU profiles identify different session partners for the PS/2. We defined two profiles in this scenario, AS400A profile for AS/400A and AS400B profile for the remote AS/400B. Therefore, we can use 5250 WSF with both AS/400A and AS/400B.

- **AS400A**

The qualified primary LU name of AS/400A is USIBMRA.RAO TNB0 and must match the AS/400A local location name. The LU alias is the LU profile name to be used for this session. The destination address must match the AS/400A token-ring local adapter address of 400010020001.

We define the mode profile to be used for session establishment as QPCSUPP.

The PLU session limit defines the maximum number of concurrently active logical connections between the local LU and this partner. The sum of all the mode session limit values for the partner LU must be no greater than the partner LU session limit.

- **AS400B**

The qualified primary LU name of AS/400B is AS4B and must match the AS/400B local location name. The LU alias is the LU profile name to be used for this session. The destination address must match the AS/400A token-ring local adapter address of 400010020001 because AS/400A is connected to the subarea and has AS4B defined in the APPN remote location list.

We define the mode profile to be used for session establishment as QPCSUPP.

The PLU session limit defines the maximum number of concurrently active logical connections between the local LU and this partner. The sum of all the mode session limit values for the partner LU must be no greater than the partner LU session limit.

- **APPC Transmission Services Profile**

The profile name is QPCSUPP. We specify the communication mode name, QPCSUPP, and the session limit of 64. This figure must be equal or less than the partner LU session limit in the partner LU profile. Take the default values for the other parameters.

- **APPC Initial Session Limit Profile**

The profile name is QPCSUPP; it defines the initial session limit setup.

8.6.3 Modify LAN Feature Profiles

OS/2 does not need the NETBIOS interface to run the 5250 Work Station Feature, therefore we select the IEEE 802.2 interface. We specified in Figure 343 on page 261 the "Universally Administered Address = No" and define the "Locally Administered Address" for the adapter as 400000001111.

Take the default values for the parameters concerning the token-ring logical connection.

8.6.4 Modify 5250 Workstation Feature Profiles

In Figure 343 on page 261 we configured the following session profiles:

- **Terminal Profiles**

We used WSFTERM1 as the terminal profile to determine the terminal attributes for keyboard, screen color etc.

- **Specify APPC LU Alias**

We used the PS/2 alias of QPCS for the APPC LU alias.

- **Session Assignments**

Select session number 1, which is the one to be displayed first, as stated in the Workstation Profile option. We assigned AS/400B to the first session by selecting the AS400B profile. We defined the following:

- 5250 WSF Profile Name: WSFTERM1
- APPC Partner LU Alias: AS400B
- APPC Mode Name: QPCSUPP
- Short Session ID: A (useful for file transfer only).

We assigned AS/400A to the second session by selecting the AS400A profile. We defined the following:

- 5250 WSF Profile Name: WSFTERM1
- APPC Partner LU Alias: AS400A
- APPC Mode Name: QPCSUPP
- Short Session ID: B (useful for file transfer only).

8.7 Definitions Defined in the Host (RAB) for the PS/2

```

***** 01220008
*      BUILD MACRO SPECIFICATIONS * 01230008
***** 01240008
NCPBUILD BUILD VERSION=V4R3,      # NCP V4 REL3      X01250008
      ADDSESS=20,      ENOUGH BLOCKS DEFINED IN RESSCB X01260008
      AUXADDR=10,      ADDITIONAL PLU ADDRESSES FOR ILU X01260108
      ENBLTO=6.5,      IBM 386X REQUIRE 6.5 AS MINIMUM X01370008
      MAXSESS=16,      MAX LU-LU SESSIONS ANY LU CAN HAVE X01400008
      MAXSSCP=8,      MAXIMUM SESSIONS FOR LU      X01401008
      MODEL=3725,      !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!! X01420008
      NAMTAB=50,      # ENTRIES FOR SSCP, CP & NET NAMES X01430008
      NETID=USIBMRA,   NATIVE NETWORK      X01431008
      NEWNAME=RAONCP0, NAME OF THIS LOAD MODULE      V3X01440008
      SUBAREA=24,      SUBAREA ADDRESS = 24      X01470008
      COSTAB=ISTSDCOS, COS TABLE USED TO ACTIVATE ER/VR X01520008
      SESSLIM=64,      NUMBER OF SESSIONS PER NAF      01580008
      :                :
      :                :

```

Figure 344. NCP BUILD Macro for the AS/400A and PS/2

In Figure 344 we define the BUILD macro which indicates the NCP version, the type of communication controller to be used and the name of this load module. It also specifies the NCP subarea of 24. USIBMRA is the network ID for the VTAM/NCP node.

```

***** 04750008
*      LINE MACRO SPECIFICATION      SDLC LINK 020      04760008
***** 04770008
RAOL0020 LINE ADDRESS=(020,HALF), TRANSMIT AND RECEIVE ADDRESSES X04780008
      NPACOLL=YES,      NPAX04790008
      ANS=CONTINUE,      DON'T BREAK CROSS DOMAIN SESSIONS X04800008
      OWNER=RAB,      (V) VTAM      X04810008
      ISTATUS=ACTIVE,      X04820008
      DUPLEX=(FULL),      REQUEST TO SEND ALWAYS UP      X04830008
      ETRATIO=30,      DEFAULT      X04840008
      LPDATS=LPDA1,      X04850008
      MAXPU=9,      ALLOW NO MORE THAN 9 PUS ON LINE      X04860008
      SERVLIM=2,      X04870008
      SRT=(,64),      X04880008
      SPEED=(4800)      LINE SPEED IS 4800 BPS      04890008
*      ATTACH=MODEM,      # NOT SUPPORTED V4R3      04900008
***** 04920008
*      * 04930008
*      SERVICE MACRO SPECIFICATION FOR SDLC (LINE 020) * 04940008
*      * 04950008
***** 04960008
      SERVICE ORDER=(RAOP07,      X04970008
      RAOP08,      X04980008
      RAOP1B,      AS/400A      X04981012
      RAOP5C,      PS/2      X04982016
      RAOP09),      S/38      X04990008
      MAXLIST=9      05000008
***** 05010008

```

Figure 345. NCP Line Macro for the AS/400A and PS/2

In Figure 345 the line RAOL0020 is specified as a non-switched multipoint line attached to the host RAB.

```

***** 07993008
* PU/LU MACRO RESERVED FOR THE AS/400A (RALLYAS4A) * 08000008
***** 08010008
*RAOP1B PU ADDR=C4, 3270 ADDRESS='C' (EBCDIC) X 08020008
* 08021009
* PU AND LU DEFINITION FOR AS/400A 08022009
* FOR SUPPORT DEPENDENT AND INDEPENDENT LUS 08023009
* GER ROOVERS EXT.2322 08024009
* 08025009
***** 08026010
RAOP1B PU ADDR=C4, 3270 ADDRESS='C' (EBCDIC) X08029209
MAXDATA=265, MAXIMUM AMOUNT OF DATA X08029309
MAXOUT=7, MAX SDLC FRAMES BEFORE RESPONSE X08029409
PACING=(7), PACING SET BY BIND IMAGE X08029512
ANS=CONTINUE, KEEPS CROSS-DOMAIN RUNNING X08029609
PASSLIM=7, X08029709
PUTYPE=2, X08029809
RETRIES=(,1,4), 4 RETRIES, 1 SECOND BETWEEN X08029909
DISCNT=(NO), (V) VTAM ONLY X08030009
ISTATUS=ACTIVE, (V) VTAM ONLY X08030109
VPACING=8, (V) VTAM ONLY X08030210
XID=YES 08030310
* STATOPT='AS/400 T2.1' 08030410
***** 08030509
* DEFINITIONS FOR AS/400A * 08030609
* RAOTNNB0 TO B3 INDEPENDENT LUS 08030709
***** 08031609
RAOTNNB0 LU RESSCB=4, INDEPENDENT LU for AS/400A X08031710
LOCADDR=0, X08031813
MODETAB=MTGS3X, X08031910
DLOGMOD=MODS361, X08032010
ISTATUS=ACTIVE 08032110
* STATOPT='INDEPENDENT LU' 08032210
RAOTNNB1 LU RESSCB=4, INDEPENDENT LU for PS/2 X08032310
LOCADDR=0, X08032413
MODETAB=MTGS3X, X08032510
DLOGMOD=QPCSUPP, X08032610
ISTATUS=ACTIVE 08032710
* STATOPT='INDEPENDENT LU' 08032810
RAOTNNB2 LU RESSCB=4, INDEPENDENT LU for AS/400B X08032910
LOCADDR=0, X08033013
MODETAB=MTGS3X, X08033110
DLOGMOD=QPCSUPP, X08033210
ISTATUS=ACTIVE 08033310
* STATOPT='INDEPENDENT LU' 08033410
RAOTNNB3 LU RESSCB=4, INDEPENDENT LU X08033510
LOCADDR=0, X08033613
MODETAB=MTGS3X, X08033710
DLOGMOD=MODS361, X08033810
ISTATUS=ACTIVE 08033910
* STATOPT='INDEPENDENT LU' 08034010

```

Figure 346. NCP PU and LU Macro for the AS/400

In Figure 346 the PU "RAOP1B has a PU address of C4 defined. This value has to match the station address defined in the AS/400A controller description for this host.

PUTYPE=2 and XID=YES must be specified so the host appears as a T2.1 node to the AS/400.

The LU used for scenario 5 is RAOTNNB0 for AS/400A and RAOTNNB1 for PS/2. Because they are independent LUs, we have to specify LOCADDR=0. RESSCB=4 means that this specific LU has four reserved session control blocks to itself.

8.8 Activate Communications on AS/400A to PS/2

This section will describe how to activate a communications link between AS/400A and the PS/2.

To activate a token-ring line on AS/400A you need to "vary on" the line, then the controller. The following screens will guide you through this exercise. You can also go directly to the Work with Configuration Status screen by using the WRKCFGSTS command.

MAIN

AS/400 Main Screen

System: RALYAS4A

Select one of the following:

1. User tasks
2. Office tasks
3. General system tasks
4. Files, libraries, and folders
5. Programming
6. Communications
7. Define or change the system
8. Problem handling
9. Display a menu
90. Sign off

Selection or command
====> 6

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
F23=Set initial menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 347. AS/400 Main Screen

Select option 6 in Figure 347 to go to the Communications screen.

CMN	Communications	System: RALYAS4A
-----	----------------	------------------

Select one of the following:

1. Communication status
2. Messages
3. Remote jobs
4. Configure communications
5. Network management
6. Network configuration
7. Verify communications
8. Send or receive files
9. Jobs

70. Related commands

Selection or command
==> 1

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 348. Communications Screen

Select option 1 in Figure 348 to communications status.

CMNSTS	Communications Status	System: RALYAS4A
--------	-----------------------	------------------

Select one of the following:

1. Work with line status
2. Work with controller status
3. Work with device status

70. Related commands

Selection or command
==> 1

F3=Exit F4=Prompt F9=Retrieve F12=Previous F13=User support
F16=System main menu

(C) COPYRIGHT IBM CORP. 1980, 1988.

Figure 349. Communications Status Screen

Select option 1 in Figure 349 to work with line status.

WRKCFGSTS	Work with Configuration Status
-----------	--------------------------------

Type choices, press Enter.

Type	► *LIN	*LIN, *CTL, *DEV
Configuration description . . .	► L41TR	Name, generic*, *ALL, *CMN...

F3=Exit F4=List F5=Refresh F11=Keywords F12=Previous
F13=How to use this display

Figure 350. Work with Communications Status Screen

Type the line description name in Figure 350 to work with line status.


```

Work with Configuration Status
System: RALYAS4A
Position to . . . . . Starting character(s)
Type options, press Enter.
  1=Vary on  2=Vary off  3=Hold device  4=End recovery  5=Work with job
  6=Release device  7=Resume recovery

Opt Lin/Ctl/Dev/Mod Status -----Job-----
  1  L41TR          VARIED OFF
More...

Parameters for options 1, 2, 3 or command
==>
F3=Exit  F4=Prompt  F5=Refresh  F9=Retrieve  F12=Previous
F14=Work with lines
(C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 351. Work with Communications Status Screen

Type option 1 to vary on the line in Figure 351.

```

CMNSTS Communications Status
System: RALYAS4A
Select one of the following:
  1. Work with line status
  2. Work with controller status
  3. Work with device status

70. Related commands

Selection or command
==> 2

F3=Exit  F4=Prompt  F9=Retrieve  F12=Previous  F13=User support
F16=System main menu
(C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 352. Communications Status Screen

Select option 2 in Figure 352 to work with controller status.

```

Work with Configuration Status
System: RALYAS4A
Position to . . . . . Starting character(s)
Type options, press Enter.
  1=Vary on  2=Vary off  3=Hold device  4=End recovery  5=Work with job
  6=Release device  7=Resume recovery

Opt Lin/Ctl/Dev/Mod Status -----Job-----
  1  TRCTLPSDS2    VARIED OFF
      RAOTNNB1     VARIED OFF
More...

Parameters for options 1, 2, 3 or command
==>
F3=Exit  F4=Prompt  F5=Refresh  F9=Retrieve  F12=Previous
F14=Work with lines
(C) COPYRIGHT IBM CORP. 1980, 1988.

```

Figure 353. Work with Communications Status Screen

Select option 1 in Figure 353 to vary on the controller.

Work with Configuration Status				System: RALYAS4A
Position to		Starting character(s)		
Type options, press Enter.				
1=Vary on 2=Vary off		3=Hold device	4=End recovery	5=Work with job
6=Release device		7=Resume recovery		
Opt	Lin/Ctl/Dev/Mod	Status	-----Job-----	
	L41TR	ACTIVE		
	TRCTLPSOS2	ACTIVE	More...	
	RAOTNNB1	ACTIVE		
Parameters for options 1, 2, 3 or command				
====>				
F3=Exit F4=Prompt		F5=Refresh	F9=Retrieve	F12=Previous
F14=Work with lines				
(C) COPYRIGHT IBM CORP. 1980, 1988.				

Figure 354. Work with Communications Status Screen

If you select F5 to refresh the screen in Figure 351 on page 268 the token-ring line is ACTIVE and the controller is ACTIVE. Because we specified CP-CP session support and APPN *YES the device descriptions are automatically created, attached to the right controller and varied on. The refreshed screen is shown in Figure 354.

8.9 Activating Communications on the PS/2

Message Status Advanced Exit	F1=Help
<p style="text-align: center;">Communications Manager Main Menu</p> <p>Active configuration file : QPCSCFG Configuration file status : Verified</p> <p>Press F10 to go to the action bar or select an item below and press Enter.</p> <p>► 1. Start communications... 2. Stop communications... 3. Transfer file... 4. Specify new configuration file name default...</p>	

Figure 355. OS/2 Communications Manager Main Menu

Select option 1 in Figure 355 to start communications.

<p style="text-align: center;">Start Communications</p> <p>1. 3270 terminal emulation (DFT)... 2. 3270 terminal emulation (non-DFT)... 3. ASCII terminal emulation... ► 4. 5250 Work Station Feature...</p>
Esc=Cancel F1=Help

Figure 356. Start Communications Menu

Select option 4 in Figure 356 to start the 5250 WSF. The next screen to appear will be this signon screen for AS/400B. You can jump to AS/400A by pressing the Alt and Page Up keys on an enhanced keyboard or Alt and F9 on an AT keyboard.

8.10 Activating communications on the S/370 Host for the PS/2

```
NCCF      N E T V I E W                      RABAN WTCR21    05/31/89 16:38:30
* RABAN   V NET,ACT,ID=RAOL0020              ←-----
RABAN     IST097I VARY      ACCEPTED
RABAN     IST093I RAOL0020 ACTIVE
C RABAN   ►AOPNLIST RAOL0020 NONE
RABAN     IST097I DISPLAY  ACCEPTED
```

Figure 357. Activate Line for AS/400A

AS/400A is T2.1 node connected to the host via a SDLC leased line. Therefore to vary on the line we should issue the VTAM command "V NET,ACT,ID=RAOL0020".

```
NCCF      N E T V I E W                      RABAN WTCR21    05/31/89 16:39:12
* RABAN   V NET,ACT,ID=RAOP1B,SCOPE=ALL       ←-----
RABAN     IST097I VARY      ACCEPTED
RABAN     IST093I RAOP1B   ACTIVE
C RABAN   ►AOPNLIST RAOP1B NONE
RABAN     IST097I DISPLAY  ACCEPTED
```

Figure 358. Activate PU for the AS/400A

To vary on AS/400A PU enter the VTAM command "V NET,ACT,ID=RAOP1B,SCOPE=ALL".

```
NCCF      N E T V I E W                      RABAN WTCR21    05/31/89 16:40:02
C RABAN   DISPLAY NET,ID=RAOP1B,SCOPE=ALL
RABAN     IST097I DISPLAY  ACCEPTED
' RABAN
IST075I   NAME = RAOP1B                      , TYPE = PU_T2.1 ←-----
IST486I   STATUS= ACTIV                      , DESIRED STATE= ACTIV
IST081I   LINE NAME = RAOL0020, LINE GROUP = RAOGSFL0, MAJNOD = RAONCP1
IST654I   I/O TRACE = OFF, BUFFER TRACE = OFF
IST355I   LOGICAL UNITS:
IST080I   RAOTNNB0 ACTIV                     RAOTNNB1 ACT/S      RAOTNNB2 ACTIV
IST080I   RAOTNNB3 ACTIV                     RAOTNNB4 ACTIV      RAOTNNB5 ACTIV
IST080I   RAOT1B01 ACTIV                     RAOT1B02 ACTIV      RAOT1B03 ACTIV
IST080I   RAOT1B04 ACTIV                     RAOT1B05 ACTIV      RAOT1B06 ACTIV
IST080I   RAOT1B07 ACTIV                     RAOT1B08 ACTIV      RAOT1B09 ACTIV
IST080I   RAOT1B0A ACTIV                     RAOT1B0B NEVAC      RAOT1B0C NEVAC
IST080I   RAOT1B0D NEVAC                     RAOT1B0E ACTIV      RAOT1B0F ACTIV
IST080I   RAOT1B0G ACTIV                     RAOT1B0H ACTIV      RAOT1B0I ACTIV
IST080I   RAOT1B0J ACTIV
IST314I   END
```

Figure 359. Display Status of the PU for the AS/400A

Figure 359 displays the status of the PU for AS/400A. Notice that the PU is seen as a T2.1 after activation and RAOTNNB1 (PS/2) is active and in session.

```

NCCF          N E T V I E W          RABAN WTCR21    06/21/89 18:07:09
C RABAN      DISPLAY NET,ID=RAOTNNB1,SCOPE=ALL
RABAN      IST097I DISPLAY ACCEPTED
' RABAN
IST075I NAME = RAOTNNB1          , TYPE = LOGICAL UNIT
IST486I STATUS= ACT/S          , DESIRED STATE= ACTIV
IST861I MODETAB=MTGS3X    USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=MODS361
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST081I LINE NAME = RAOL0020, LINE GROUP = RAOGSFLO, MAJNOD = RAONCP2
IST135I PHYSICAL UNIT = RAOP1B
IST082I DEVTYPE = INDEPENDENT LU
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST634I NAME      STATUS      SID      SEND RECV VR TP NETID
IST635I AS4B      ACTIV-S     CE773A1F5526339C      0 0 USIBMRA
IST635I AS4B      ACTIV-S     CE773A1F5526339B      0 0 USIBMRA
IST314I END

```

Figure 360. Display Status of the LU for the PS/2

Figure 360 displays the status of the LU for the PS/2. Notice the new device type of "independent LU". VTAM recognizes that it is an independent LU because of the LOCADDR=00 in the NCP major node.

If you look at IST635I you will see that this PS/2 LU (RAOTNNB1) has an active session with AS/400B LU (AS4B).

```

NCCF          N E T V I E W          RABAN WTCR21    06/21/89 18:06:53
C RABAN      DISPLAY NET,ID=AS4B,SCOPE=ALL
RABAN      IST097I DISPLAY ACCEPTED
' RABAN
IST075I NAME = AS4B          , TYPE = LOGICAL UNIT
IST486I STATUS= ACT/S          , DESIRED STATE= ACTIV
IST861I MODETAB=MTGS3X    USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=QPCSUPP
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST135I PHYSICAL UNIT = RAOTRPU2
IST136I SWITCHED SNA MAJOR NODE = SWRAOTR
IST082I DEVTYPE = INDEPENDENT LU
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST634I NAME      STATUS      SID      SEND RECV VR TP NETID
IST635I RAOTNNB1  ACTIV-P     CE773A1F5526339C      0 0 USIBMRA
IST635I RAOTNNB1  ACTIV-P     CE773A1F5526339B      0 0 USIBMRA
IST314I END

```

Figure 361. Display Status of the LU for the AS/400A

Figure 361 displays the status of the LU for AS/400B. Notice the new device type of "independent LU". VTAM recognizes that it is an independent LU because of the LOCADDR=00 in the NCP major node.

If you look at IST635I you will see that AS/400B LU (AS4B) has an active session with the PS/2 LU (RAOTNNB1) and in this case the PS/2 is the primary LU.

COMMUNICATIONS TRACE Title: 400A TO RAB TO 400B 07/20/89 07:52:01 Page: 1

Trace Description : 400A TO RAB TO 400B
Line name : L24020
Line protocol : SDLC
Start Date/Time : 07/20/89 07:46:00
End Date/Time : 07/20/89 07:51:45
Bytes collected : 13342
Buffer size : 3 1=128K, 2=256K, 3=2048K
Data direction : 3 1=Sent, 2=Received, 3=Both
Stop on buffer full : N Y=Yes, N=No
Format SNA data only : Y Y=Yes, N=No
Format RR, RNR commands : N Y=Yes, N=No
Controller Name : *ALL *ALL, name

COMMUNICATIONS TRACE Title: 400A TO RAB TO 400B 07/20/89 07:52:01 Page: 2

Record Number Number of record in trace buffer (decimal)
S/R S=Sent R=Received M=Modem Change
Controller name Name of Controller associated with record
SNA Data TH, RH and RU for record
TH Transmission Header
RH Request/Response Header
RU Request/Response Unit

TH Parameter Descriptions:

FID Format Identification
MPF Mapping Field (segment of Basic Information Unit (BIU) - ONLY, FIRST, MIDDLE, LAST)
OAF Origination Address Field
DAF Destination Address Field
SNF Sequence Number Field
DCF Data Count Field
LA Local Address
ODAI OAF-DAF Assignor Indicator
EFI Expedited Flow Indicator
LU Logical Unit
SSCP System Services Control Point
PU Physical Unit

RH Parameter Descriptions:

REQ Request
RSP Response

RH Category Descriptions:

NC Network Control
SC Session Control
DFC Data Flow Control
NC Network Control
FMD Function Management Data
FMH Function Management Header

RH Indicators:

FI Format Indicator
SDI Sense Data Included Indicator
BCI Begin Chain Indicator
ECI End Chain Indicator
DR1 Definite Response 1 Indicator
DR2 Definite Response 2 Indicator
ERI Exception Response Indicator
RTI Response Type Indicator
QRI Queued Response Indicator
EBI End Bracket Indicator
CDI Change Direction Indicator
PI Pacing Indicator
BBI Begin Bracket Indicator
CSI Code Selection Indicator
EDI Enciphered Data Indicator
PDI Padded Data Indicator
CEBI Conditional End Bracket Indicator
RLWI Request Larger Window Indicator

Figure 363. AS/400A to Host BIND Exchanges

COMMUNICATIONS TRACE				Title: 400A TO RAB TO 400B	07/20/89 07:52:01	Page: 3
Record Number	S/R	Controller Name	Data Type	SNA Data: TH, RH, RU		
38	R	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=00, SNF'=19A8, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
			RU Command	ACTPU		
			RU Data	110201050000000000	*.....	*
44	S	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=00, SNF'=19A8, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
			RU Command	ACTPU		
			RU Data	11110404040404040400000070100000000000	*..	*
673	S	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=00, OAF'=02, SNF'=E159, EFI RH : ('6B8100'X) REQ SC, FI, BCI, ECI, DR1, PI		
			RU Command	BIND		
			RU Data	31001307B0B050B301808585800106020000000000001023000008D9C1 D6E3D5D5C2F11F000902E2D5C1E2E5C3D4C7090300E1F76A5AE1F76A0904 D9C1D6E3D5D5C2F10004C1E2F4C26019CE773A1F5526339B10E4E2C9C2D4 D9C14BD9C1D3E8C1E2F4C10E11F4E4E2C9C2D4D9C14BD7E2F24040404040 2B2A0202164614800110E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C112461080 010BE4E2C9C2D4D9C14BD9C1C2002C0A0408E2D5C1E2E5C3D4C7 TH : FID=2, MPF=Only / ODAI=0, DAF'=00, OAF'=01, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI	*.....&...EE.....RA* *OTNNB1....SNASVCMG....7.1.7... *RAOTNNB1..AS4B-.....USIBM* *RA.RALYAS4A..4USIBMRA.PS2 *.....USIBMRA.RALYAS4A.... *..USIBMRA.RAB.....SNASVCMG	*
675	R	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=00, SNF'=E159, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
			RU Command	BIND		
			RU Data	31001307B0B050B30080858580000002000000000000010230000002300 0902E2D5C1E2E5C3D4C7090300E1F76A5AE1F76A0D05E4E2C9C2D4D9C14B C1E2F4C200002C0A0108404040404040406019CE773A1F5526339B10E4 E2C9C2D4D9C14BD9C1D3E8C1E2F4C1	*.....&...EE.....* *..SNASVCMG....7.1.7...USIBMRA.* *AS4B-.....-.....U* *SIBMRA.RALYAS4A	*
682	S	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=00, OAF'=02, SNF'=0001 RH : ('0B9520'X) REQ FMD, FI, BCI, ECI, DR1, ERI, RLWI, PI, CDI		
			RU Command			
			RU Data	0D0502FF0003D000000206F1000019121002000000000040002000000008 D8D7C3E2E4D7D740	*.....}....1.....* *QPCSUPP	*
684	R	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=00, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
			RU Data	000000	*...	*
689	R	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=02, OAF'=00, SNF'=0001 RH : ('039101'X) REQ FMD, BCI, ECI, DR1, ERI, PI, CEBI		
			RU Data	001912100A00000000004000200000000000D8D7C3E2E4D7D740	*.....}....QPCSUPP	*
693	S	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=00, OAF'=02, SNF'=0000, EFI RH : ('830100'X) RSP FMD, PI		
			RU Data	000001	*...	*
696	S	P24020D	EBCDIC	TH : FID=2, MPF=Only / ODAI=1, DAF'=01, OAF'=02, SNF'=E15D, EFI RH : ('6B8100'X) REQ SC, FI, BCI, ECI, DR1, PI		
			RU Command	BIND		
			RU Data	31001307B0B050B3078085858007060200000000000001023000008D9C1 D6E3D5D5C2F11F000902D8D7C3E2E4D7D740090300E1F76A5EE1F76A0904 D9C1D6E3D5D5C2F10004C1E2F4C26019CE773A1F5526339C10E4E2C9C2D4 D9C14BD9C1D3E8C1E2F4C10E11F4E4E2C9C2D4D9C14BD7E2F24040404040 2B2A0202164614800110E4E2C9C2D4D9C14BD9C1D3E8C1E2F4C112461080 010BE4E2C9C2D4D9C14BD9C1C2002C0A01087BC3D6D5D5C5C3E3	*.....&...EE.....RA* *OTNNB1....QPCSUPP ....7.;.7... *RAOTNNB1..AS4B-.....USIBM* *RA.RALYAS4A..4USIBMRA.PS2 *.....USIBMRA.RALYAS4A.... *..USIBMRA.RAB.....#CONNECT	*

Figure 364. AS/400A to Host BIND Exchanges

8.12 Traces AS/400A to PS/2

The following traces were taken on AS/400A using the trace facility. This trace displays both the XID3 exchanges and the BIND exchanges between AS/400A and the PS/2. You will also see the exchanges being sent for AS/400B behind the S/370 subarea.

[illegible]

Figure 366. AS/400A to PS/2 XID3 Exchanges

Figure 367. AS/400A to PS/2 XID3 Exchanges

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COMMUNICATIONS TRACE      Title: AS400A TO PS/2      07/20/89 07:52:47      Page: 1
Trace Description . . . . : AS400A TO PS/2
Line name . . . . . : L41TR
Line protocol . . . . . : TRLAN
Start Date/Time . . . . : 07/20/89 07:47:18
End Date/Time . . . . . : 07/20/89 07:51:41
Bytes collected . . . . . : 6579
Buffer size . . . . . : 3      1=128K, 2=256K, 3=2048K
Data direction . . . . . : 3      1=Sent, 2=Received, 3=Both
Stop on buffer full . . . : N      Y=Yes, N=No
Format SNA data only . . . : Y      Y=Yes, N=No
Format RR, RNR commands . : N      Y=Yes, N=No
Controller Name . . . . . : *ALL      *ALL, name
COMMUNICATIONS TRACE      Title: AS400A TO PS/2      07/20/89 07:52:47      Page: 2

Record Number . . . . . Number of record in trace buffer (decimal)
S/R . . . . . S=Sent R=Received M=Modem Change
Controller name . . . . . Name of Controller associated with record
SNA Data . . . . . TH, RH and RU for record
TH . . . . . Transmission Header
RH . . . . . Request/Response Header
RU . . . . . Request/Response Unit
TH Parameter Descriptions:
  FID . . . . . Format Identification
  MPF . . . . . Mapping Field (segment of Basic Information
                  Unit (BIU) - ONLY, FIRST, MIDDLE, LAST)
  OAF . . . . . Origination Address Field
  DAF . . . . . Destination Address Field
  SNF . . . . . Sequence Number Field
  DCF . . . . . Data Count Field
  LA . . . . . Local Address
  ODAI . . . . . OAF-DAF Assignor Indicator
  EFI . . . . . Expedited Flow Indicator
  LU . . . . . Logical Unit
  SSCP . . . . . System Services Control Point
  PU . . . . . Physical Unit
RH Parameter Descriptions:
  REQ . . . . . Request
  RSP . . . . . Response
RH Category Descriptions:
  NC . . . . . Network Control
  SC . . . . . Session Control
  DFC . . . . . Data Flow Control
  NC . . . . . Network Control
  FMD . . . . . Function Management Data
  FMH . . . . . Function Management Header
RH Indicators:
  FI . . . . . Format Indicator
  SDI . . . . . Sense Data Included Indicator
  BCI . . . . . Begin Chain Indicator
  ECI . . . . . End Chain Indicator
  DR1 . . . . . Definite Response 1 Indicator
  DR2 . . . . . Definite Response 2 Indicator
  ERI . . . . . Exception Response Indicator
  RTI . . . . . Response Type Indicator
  QRI . . . . . Queued Response Indicator
  EBI . . . . . End Bracket Indicator
  CDI . . . . . Change Direction Indicator
  PI . . . . . Pacing Indicator
  BBI . . . . . Begin Bracket Indicator
  CSI . . . . . Code Selection Indicator
  EDI . . . . . Enciphered Data Indicator
  PDI . . . . . Padded Data Indicator
  CEBI . . . . . Conditional End Bracket Indicator
  RLWI . . . . . Request Larger Window Indicator

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Figure 368. AS/400A to PS/2 BIND Exchanges

COMMUNICATIONS TRACE				Title: AS400A TO PS/2	07/20/89 07:52:47	Page: 3
Record Number	S/R	Controller Name	Data Type	SNA Data: TH, RH, RU		
23	R	TRCTLPS0S2	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=02, SNF'=E14E, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
		RU Command	.....	BIND		
		RU Data	.....	31001307B0B0D0B1010085858001060200000000000001023000008D9C1 *.....}...EE.....RA* D6E3D5D5C2F11F000902E2D5C1E2E5C3D4C7090300E1F76A4FE1F76A0904 *OTNNB1....SNASVCMG....7.!.7...* D9C1D6E3D5D5C2F10010E4E2C9C2D4D9C14BD9C1D6E3D5D5C2F0 *RAOTNNB1..USIBMRA.RAOTNNB0 *		
25	S	TRCTLPS0S2	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=01, SNF'=E14E, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
		RU Command	.....	BIND		
		RU Data	.....	31001307B0B0D0B10107858587010602000000000000010230000002700 *.....}...EEG.....* 0902E2D5C1E2E5C3D4C7090300E1F76A4FE1F76A1105E4E2C9C2D4D9C14B *..SNASVCMG....7.!.7...USIBMRA.* D9C1D6E3D5D5C2F00000 *RAOTNNB0.. *		
27	R	TRCTLPS0S2	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=02, SNF'=0001 RH : ('0B9120'X) REQ FMD, FI, BCI, ECI, DR1, ERI, PI, CDI		
		RU Command	.....	FMH- 5=0D0502FF0003D0000000206F100 *.....}....1. *		
		RU Data	.....	001912100200000000000400020000000008D8D7C3E24D7D740 *.....}.....QPCSUPP *		
29	S	TRCTLPS0S2	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=01, SNF'=0000 RH : ('830100'X) RSP FMD, PI		
		RU Command	.....	No RU data		
31	S	TRCTLPS0S2	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=01, SNF'=0001 RH : ('039101'X) REQ FMD, BCI, ECI, DR1, ERI, PI, CEBI		
		RU Data	.....	001912100A00000000000400020000000008D8D7C3E24D7D740 *.....}.....QPCSUPP *		
33	R	TRCTLPS0S2	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=01, OAF'=02, SNF'=0000 RH : ('830100'X) RSP FMD, PI		
		RU Command	.....	No RU data		
35	R	TRCTLPS0S2	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=02, SNF'=E152, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
		RU Command	.....	BIND		
		RU Data	.....	31001307B0B0D0B1070085858007060200000000000001023000008D9C1 *.....}...EE.....RA* D6E3D5D5C2F11F000902D8D7C3E24D7D740090300E1F76A53E1F76A0904 *OTNNB1....QPCSUPP ....7...7...* D9C1D6E3D5D5C2F10010E4E2C9C2D4D9C14BD9C1D6E3D5D5C2F0 *RAOTNNB1..USIBMRA.RAOTNNB0 *		
37	R	TRCTLPS0S2	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=03, OAF'=02, SNF'=E159, EFI RH : ('6B8000'X) REQ SC, FI, BCI, ECI, DR1		
		RU Command	.....	BIND		
		RU Data	.....	31001307B0B0D0B1010085858001060200000000000001023000008D9C1 *.....}...EE.....RA* D6E3D5D5C2F11F000902E2D5C1E2E5C3D4C7090300E1F76A5AE1F76A0904 *OTNNB1....SNASVCMG....7.!.7...* D9C1D6E3D5D5C2F10004C1E2F4C2 *RAOTNNB1..AS4B *		
39	S	TRCTLPS0S2	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=02, SNF'=E152, EFI RH : ('EB8000'X) RSP SC, FI, DR1		
		RU Command	.....	BIND		
		RU Data	.....	31001307B0B0D0B10707858587070602000000000000010230000002700 *.....}...EEG.....* 0902D8D7C3E24D7D740090300E1F76A53E1F76A1105E4E2C9C2D4D9C14B *..QPCSUPP ....7...7...USIBMRA.* D9C1D6E3D5D5C2F00000 *RAOTNNB0.. *		
41	R	TRCTLPS0S2	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=02, SNF'=0001 RH : ('4B9101'X) REQ DFC, FI, BCI, ECI, DR1, ERI, PI, CEBI		
		RU Command	.....	LUSTAT		
		RU Data	.....	0400060000 *..... *		

Figure 369. AS/400A to PS/2 BIND Exchanges

Figure 370. AS/400A to PS/2 BIND Exchanges

COMMUNICATIONS TRACE				Title: AS400A TO PS/2	07/20/89 07:52:47	Page: 6
Record Number	S/R	Controller Name	Data Type	SNA Data: TH, RH, RU		
80	S	TRCTLPS0S2	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=02, SNF'=0003 RH : ('009000'X) REQ FMD, DR1, ERI		
		RU Data		000A11081020D799968799819461979996838584A49985404B404B404B40 *.....PROGRAM/PROCEDURE . . . * 4B404B404B404B404B201108341D400024000A000000000000000000000011 *..... 091020D48595A440404B404B404B404B404B404B404B404B404B404B404B *...MENU * 404B404B404B201109341D400024000A00000000000000000000000000110A1020 *..... C3A499998595A340938982998199A8404B404B404B404B404B404B404B40 *CURRENT LIBRARY * 4B404B20110A341D400024000A0000000000000000000000000011071020D781A2 *.....PAS * A2A696998440404B404B404B404B404B404B404B404B404B404B404B404B *SWORD * 201107342702073E001118272240DC35D40C3D6D7E8D9C9C7C8E340C9C2 *..... (C) COPYRIGHT IB * D440C3D6D9D74B40F1F9F8F06B40F1F9 *M CORP. 1980, 19		
83	S	TRCTLPS0S2	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=02, SNF'=0004 RH : ('019020'X) REQ FMD, ECI, DR1, ERI, CDI		
		RU Data		F8F84B4040404020 *88.		
85	S	TRCTLPS0S2	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=04, SNF'=0002 RH : ('029000'X) REQ FMD, BCI, DR1, ERI		
		RU Data		020812A000000041080030E1800000000000000000000000044004110018 *..... 110101110101110101010700000018000000110116224040404040404040 *..... 4040404040E289879540D695020137402011022F20E2A8A2A3859440404B *SIGN ON... ..SYSTEM * 404B404B404B404B407A2011024520D9C1D3E8C1E2F4C22011032F20E2A4 *.....:.....RALLYAS4B....SU * 82A2A8A2A38594404B404B404B404B407A2011034520D8C2C1E2C5404040 *BSYSTEM . . . :.....QBASE * 40402011042F20C489A2979381A8404B404B404B404B404B407A20110445 *.....DISPLAY . . . :..... * 20D9C1D6E3D5D5C2F1E2F12011061020E4A2859940404B404B404B404B40 *.....RAOTNNB1S1.....USER . . . * 4B404B404B404B404B404B404B404B404B404B404B404B404B201106341D402024000A00 *..... 0000000000000000001107341D402027 *.....		
87	S	TRCTLPS0S2	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=04, SNF'=0003 RH : ('009000'X) REQ FMD, DR1, ERI		
		RU Data		000A11081020D799968799819461979996838584A49985404B404B404B40 *.....PROGRAM/PROCEDURE . . . * 4B404B404B404B404B201108341D400024000A000000000000000000000011 *..... 091020D48595A440404B404B404B404B404B404B404B404B404B404B404B *...MENU * 404B404B404B201109341D400024000A00000000000000000000000000110A1020 *..... C3A499998595A340938982998199A8404B404B404B404B404B404B404B40 *CURRENT LIBRARY * 4B404B20110A341D400024000A0000000000000000000000000011071020D781A2 *.....PAS * A2A696998440404B404B404B404B404B404B404B404B404B404B404B404B *SWORD * 201107342702073E001118272240DC35D40C3D6D7E8D9C9C7C8E340C9C2 *..... (C) COPYRIGHT IB * D440C3D6D9D74B40F1F9F8F06B40F1F9 *M CORP. 1980, 19		
89	S	TRCTLPS0S2	EBCDIC	TH : FID=2, MPF=Only / ODAI=0, DAF'=02, OAF'=04, SNF'=0004 RH : ('019020'X) REQ FMD, ECI, DR1, ERI, CDI		
		RU Data		F8F84B4040404020 *88.		
***** END OF COMMUNICATIONS TRACE OUTPUT *****						

Figure 372. AS/400A to PS/2 BIND Exchanges

9.0 Appendix A: AS/400A CL Program for Scenario 1 (SNA Switched)

```

5728PW1 R01M02 881028                      SEU SOURCE LISTING
SOURCE FILE . . . . . CMNLIB/QCLSRC
MEMBER . . . . . L24025
SEQNBR*...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
100      PGM
200
300 /*****
400 /* THIS PROGRAM IS USED TO CREATE THE LINE, CONTROL UNIT AND DEVICE */
500 /* DESCRIPTION FOR THE SNA LINE CONNECTION TO SA24 NCP=RAONCP0 */
600 /* THE SNA CONNECTION BETWEEN AS/400 AND SA24 IS SWITCHED */
700 /*****
800
900
1000 /* LINE NAME:          L24025          RESOURCE NAME: LIN032          */
1100
1200 /* PU/CTL NAME:       P24025D          SDLC ADDRESS: 01          */
1300 /*
1400 /* DEVICES:
1500 /*                      DEVD/LU NAME          LOCADDR          */
1600 /*                      -----          -----          */
1700 /* INDEPENDENT LU    RAOTNNC0          00          */
1800 /*
1900 /* 3270 EMULATION    T24025D1          01          */
2000 /*                      T24025D2          02          */
2100 /*                      T24025D3          03          */
2200 /*                      T24025D4          04          */
2300 /*
2400 /* APPC              T24025D5          05          */
2500 /*                      T24025D6          06          */
2600 /*                      T24025D7          07          */
2700 /*
2800 /* SNUF LU 0          T24025D8          08          */
2900 /*                      T24025D9          09          */
3000 /*                      T24025DA          10/0A          */
3100 /*
3200 /* RJE                T24025DB          11/0B          */
3300 /*                      T24025DC          12/0C          */
3400 /*                      T24025DD          13/0D          */
3500 /*
3600 /* DHCF              T24025DE          14/0E          */
3700 /*                      T24025DF          15/0F          */
3800 /*                      T24025DG          16/10          */
3900 /*                      T24025DH          17/11          */
4000 /*                      T24025DI          18/12          */
4100 /*
4200 /* DSNX              T24025DJ          19/13          */
4300 /*                      T24025DK          20/14          */
4400 /*****

```

```

4500 /*
4600             MONMSG      MSGID(CPF0000)
4700
4800             VRYCFG      CFGOBJ(L24025) CFGTYPE(*LIN) STATUS(*OFF)
4900             DLTDEVD      DEVD(RAOTNNC0)
5000             DLTDEVD      DEVD(T24025D*)
5100             DLTCTLD      CTLD(P24025D)
5200             DLTIND      LIND(L24025)
5300
5728PW1 R01M02 881028             SEU SOURCE LISTING
SOURCE FILE . . . . . CMNLIB/QCLSRC
MEMBER . . . . . L24025
SEQNBR*...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
5400             CRTLINS DLC LIND(L24025) RSRNAME(LIN032) ONLINE(*NO) +
5500             ROLE(*SEC) CNN(*SWTPP) EXCHID(*SYSGEN) +
5600             STNADR(01) MAXFRAME(265) DUPLEX(*HALF) +
5700             TEXT('SNA/SDLC Switched to SA24')
5800
5900 /* THIS IS THE CONTROLLER DESCR TO SA24 */
6000             CRTCTLHOST CTLD(P24025D) LINKTYPE(*SDLC) ONLINE(*NO) +
6100             SWITCHED(*YES) APPN(*YES) SWTLINLST(L24025) +
6200             MAXFRAME(265) RMTNETID(USIBMRA) +
6300             RMTCPNAME(RAB) SSCPID(050000000000B) +
6400             CNNBR(2401) STNADR(01) CPSSN(*NO) +
6500             NODETYPE(*LENNODE) TEXT('SNA CTL/PU on +
6600             L24025') SWTDSC(*YES)
6700
6800 /* 3270 DEVICE EMULATION */
6900             CRTDEVHOST DEVD(T24025D1) LOCADR(01) RMTLOCNAME(MVS3) +
7000             ONLINE(*NO) CTL(P24025D) APPTYPE(*EML) +
7100             MAXLENRU(512) EMLKBD(*LOWER) TEXT('SNA 3278 +
7200             DE')
7300             CRTDEVHOST DEVD(T24025D2) LOCADR(02) RMTLOCNAME(MVS3) +
7400             ONLINE(*NO) CTL(P24025D) APPTYPE(*EML) +
7500             MAXLENRU(512) EMLKBD(*LOWER) TEXT('SNA 3278 +
7600             DE')
7700             CRTDEVHOST DEVD(T24025D3) LOCADR(03) RMTLOCNAME(MVS3) +
7800             ONLINE(*NO) CTL(P24025D) APPTYPE(*EML) +
7900             MAXLENRU(512) EMLKBD(*LOWER) TEXT('SNA 3278 +
8000             DE')
8100             CRTDEVHOST DEVD(T24025D4) LOCADR(04) RMTLOCNAME(MVS3) +
8200             ONLINE(*NO) CTL(P24025D) APPTYPE(*EML) +
8300             EMLDEV(3287) +
8400             MAXLENRU(512) EMLKBD(*LOWER) TEXT('SNA 3287 +
8500             PRINTER DE')
8600
8700 /* LU 6.2 SESSIONS TO CICS */
8800             CRTDEVAPPC DEVD(T24025D5) RMTLOCNAME(CICS11) ONLINE(*NO) +
8900             LCLLOCNAME(T24025D5) RMTNETID(*NETATR) +
9000             CTL(P24025D) MODE(MODS361) APPN(*YES) +
9100             SNGSSN(*YES) TEXT('LU 6.2, dependent') +
9200             LOCADR(05)
9300             CRTDEVAPPC DEVD(T24025D6) RMTLOCNAME(CICS11) ONLINE(*NO) +
9400             LCLLOCNAME(T24025D6) RMTNETID(*NETATR) +
9500             CTL(P24025D) MODE(MODS361) APPN(*YES) +
9600             SNGSSN(*YES) TEXT('LU 6.2, dependent') +
9700             LOCADR(06)

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```

9800          CRTDEVAPP DEVD(T24025D7) RMTLOCNAME(CICS11) ONLINE(*NO) +
9900          LCLLOCNAME(T24025D7) RMTNETID(*NETATR) +
10000         CTL(P24025D) MODE(MODS361) APPN(*YES) +
10100         SNGSSN(*YES) TEXT('LU 6 2, dependent') +
10200         LOCADR(07)
10300
10400 /* LU 0 TO CICS */
10500         CRTDEVSNUF DEVD(T24025D8) LOCADR(08) RMTLOCNAME(CICS) +
10600         ONLINE(*NO) CTL(P24025D) APPID(DSVE) +
10700         HOST(*CICS) TEXT('LU 0/ SNUF to CICS')
10800         CRTDEVSNUF DEVD(T24025D9) LOCADR(09) RMTLOCNAME(CICS) +
10900         ONLINE(*NO) CTL(P24025D) APPID(DSVE) +
11000         HOST(*CICS) TEXT('LU 0/ SNUF to CICS')
11100         CRTDEVSNUF DEVD(T24025DA) LOCADR(0A) RMTLOCNAME(CICS) +
11200         ONLINE(*NO) CTL(P24025D) APPID(DSVE) +
11300         HOST(*CICS) TEXT('LU 0/ SNUF to CICS')
11400
11500 /* RJE SESSIONS */
11600         CRTDEVHOST DEVD(T24025DB) LOCADR(0B) RMTLOCNAME(JES2A) +
11700         ONLINE(*NO) CTL(P24025D) APPTYPE(*RJE) +
11800         TEXT('RJE Session')
11900         CRTDEVHOST DEVD(T24025DC) LOCADR(0C) RMTLOCNAME(JES2B) +
12000         ONLINE(*NO) CTL(P24025D) APPTYPE(*RJE) +
12100         TEXT('RJE Session')
12200         CRTDEVHOST DEVD(T24025DD) LOCADR(0D) RMTLOCNAME(JES2C) +
12300         ONLINE(*NO) CTL(P24025D) APPTYPE(*RJE) +
12400         TEXT('RJE Session')
12600 /* HCF/DHCF SESSIONS */
12700         CRTDEVDSP DEVD(T24025DE) DEVCLS(*RMT) TYPE(3277) +
12800         MODEL(*DHCF) LOCADR(0E) ONLINE(*NO) +
12900         CTL(P24025D) TEXT('HCF/DHCF')
13000         CRTDEVDSP DEVD(T24025DF) DEVCLS(*RMT) TYPE(3277) +
13100         MODEL(*DHCF) LOCADR(0F) ONLINE(*NO) +
13200         CTL(P24025D) TEXT('HCF/DHCF')
13300         CRTDEVDSP DEVD(T24025DG) DEVCLS(*RMT) TYPE(3277) +
13400         MODEL(*DHCF) LOCADR(10) ONLINE(*NO) +
13500         CTL(P24025D) TEXT('HCF/DHCF')
13600         CRTDEVDSP DEVD(T24025DH) DEVCLS(*RMT) TYPE(3277) +
13700         MODEL(*DHCF) LOCADR(11) ONLINE(*NO) +
13800         CTL(P24025D) TEXT('HCF/DHCF')
13900         CRTDEVDSP DEVD(T24025DI) DEVCLS(*RMT) TYPE(3277) +
14000         MODEL(*DHCF) LOCADR(12) ONLINE(*NO) +
14100         CTL(P24025D) TEXT('HCF/DHCF')
14300 /* DSNX SESSIONS */
14400         CRTDEVSNUF DEVD(T24025DJ) LOCADR(13) RMTLOCNAME(NVDM) +
14500         ONLINE(*NO) CTL(P24025D) PGMSTRRQS(*YES) +
14600         RCDLEN(32761) BLKLEN(32761) DFTPGM(AAA) +
14700         TEXT('LU 0/ SNUF to NV/DM')
14800         CRTDEVSNUF DEVD(T24025DK) LOCADR(14) RMTLOCNAME(NVDM) +
14900         ONLINE(*NO) CTL(P24025D) PGMSTRRQS(*YES) +
15000         RCDLEN(32761) BLKLEN(32761) DFTPGM(AAA) +
15100         TEXT('LU 0/ SNUF to NV/DM')
15300         ENDPGM

```


10.0 Appendix B: AS/400A CL Program for Scenario 2 (SNA Leased)

```

5728PW1 R01M02 881028                      SEU SOURCE LISTING
SOURCE FILE . . . . . CMNLIB/QCLSRC
MEMBER . . . . . L24020
SEQNBR*...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
100      PGM
200 /******
300 /* THIS PROGRAM IS USED TO CREATE THE LINE, CONTROL UNIT AND DEVICE */
400 /* DESCRIPTION FOR THE SNA LINE CONNECTION TO SA24 NCP=RA0NCP0 */
500 /******
600 /* LINE NAME:      L24020      RESOURCE NAME: LIN021      */
700 /* PU/CTL NAME:    P24020C4    SDLC ADDRESS: C4          */
800 /*
900 /* DEVICES:
1000 /*              DEVD/LU NAME              LOCADDR      */
1100 /*              -----              -----            */
1200 /* INDEPENDENT LU  RA0TNNB0              00              */
1300 /*
1400 /* 3270 EMULATION  T24020D1              01              */
1500 /*                  T24020D2              02              */
1600 /*                  T24020D3              03              */
1700 /*                  T24020D4              04              */
1800 /*
1900 /* APPC              T24020D5              05              */
2000 /*                  T24020D6              06              */
2100 /*                  T24020D7              07              */
2200 /*
2300 /* SNUF LU 0        T24020D8              08              */
2400 /*                  T24020D9              09              */
2500 /*                  T24020DA             10/0A             */
2600 /*
2700 /* RJE              T24020DB             11/0B             */
2800 /*                  T24020DC             12/0C             */
2900 /*                  T24020DD             13/0D             */
3000 /*
3100 /* DHCF              T24020DE             14/0E             */
3200 /*                  T24020DF             15/0F             */
3300 /*                  T24020DG             16/10             */
3400 /*                  T24020DH             17/11             */
3500 /*                  T24020DI             18/12             */
3600 /*
3700 /* DSNX              T24020DJ             19/13             */
3800 /*                  T24020DK             20/14             */
3900 /******

```

```

4000 /*
4100 MONMSG MSGID(CPF0000)
4200 VRYCFG CFGOBJ(L24020) CFGTYPE(*LIN) STATUS(*OFF)
4300 DLTDEVD DEVD(RAOTNNB0)
4400 DLTDEVD DEVD(T24020D*)
4500 DLTCTLD CTLD(P24020D)
4600 DLTIND LIND(L24020)
4700 CRTLINS DLC LIND(L24020) RSRNAME(LIN021) ROLE(*SEC) +
4800 CNN(*MP) EXCHID(*SYSGEN) MAXCTL(5) +
4900 MAXFRAME(521) DUPLEX(*HALF) TEXT('SNA/SDLC +
5000 Leased to SA24')
5100 /* THIS IS THE CONTROLLER DESCR TO SA24 */
5200 CRTCTHST CTLD(P24020D) LINKTYPE(*SDLC) APPN(*YES) +
5300 LINE(L24020) MAXFRAME(521) +
5728PW1 R01M02 881028 SEU SOURCE LISTING
SOURCE FILE . . . . . CMNLB/QCLSRC
MEMBER . . . . . L24020
SEQNBR*...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
5400 RMTNETID(USIBMRA) RMTCPNAME(RAB) STNADR(C4) +
5500 CPSSN(*NO) NODETYPE(*LENNODE) TEXT('SNA +
5600 CTL/PU on L24020')
5700 /* 3270 DEVICE EMULATION */
5800 CRTDEVHST DEVD(T24020D1) LOCADR(01) RMTLOCNAME(MVS3) +
5900 ONLINE(*NO) CTL(P24020D) APPTYPE(*EML) +
6000 MAXLENRU(512) EMLKBD(*LOWER) TEXT('SNA 3278 +
6100 DE')
6200 CRTDEVHST DEVD(T24020D2) LOCADR(02) RMTLOCNAME(MVS3) +
6300 ONLINE(*NO) CTL(P24020D) APPTYPE(*EML) +
6400 MAXLENRU(512) EMLKBD(*LOWER) TEXT('SNA 3278 +
6500 DE')
6600 CRTDEVHST DEVD(T24020D3) LOCADR(03) RMTLOCNAME(MVS3) +
6700 ONLINE(*NO) CTL(P24020D) APPTYPE(*EML) +
6800 MAXLENRU(512) EMLKBD(*LOWER) TEXT('SNA 3278 +
6900 DE')
7000 CRTDEVHST DEVD(T24020D4) LOCADR(04) RMTLOCNAME(MVS3) +
7100 ONLINE(*NO) CTL(P24020D) APPTYPE(*EML) +
7200 EMLDEV(3287) +
7300 MAXLENRU(512) EMLKBD(*LOWER) TEXT('SNA 3287 +
7400 PRINTER DE')
7500 /* LU 6.2 SESSIONS TO CICS */
7600 CRTDEVAPPC DEVD(T24020D5) RMTLOCNAME(CICS11) ONLINE(*NO) +
7700 LCLLOCNAME(T24020D5) RMTNETID(*NETATR) +
7800 CTL(P24020D) MODE(MODS361) APPN(*YES) +
7900 SNGSSN(*YES) TEXT('LU 6.2, dependent') +
8000 LOCADR(05)
8100 CRTDEVAPPC DEVD(T24020D6) RMTLOCNAME(CICS11) ONLINE(*NO) +
8200 LCLLOCNAME(T24020D6) RMTNETID(*NETATR) +
8300 CTL(P24020D) MODE(MODS361) APPN(*YES) +
8400 SNGSSN(*YES) TEXT('LU 6.2, dependent') +
8500 LOCADR(06)
8600 CRTDEVAPPC DEVD(T24020D7) RMTLOCNAME(CICS11) ONLINE(*NO) +
8700 LCLLOCNAME(T24020D7) RMTNETID(*NETATR) +
8800 CTL(P24020D) MODE(MODS361) APPN(*YES) +
8900 SNGSSN(*YES) TEXT('LU 6.2, dependent') +
9000 LOCADR(07)

```

```

9100 /* LU 0 TO CICS */
9200         CRTDEVSNUF DEVD(T24020D8) LOCADR(08) RMTLOCNAME(CICS) +
9300             ONLINE(*NO) CTL(P24020D) APPID(DSVE) +
9400             HOST(*CICS) TEXT('LU 0/ SNUF to CICS')
9500         CRTDEVSNUF DEVD(T24020D9) LOCADR(09) RMTLOCNAME(CICS) +
9600             ONLINE(*NO) CTL(P24020D) APPID(DSVE) +
9700             HOST(*CICS) TEXT('LU 0/ SNUF to CICS')
9800         CRTDEVSNUF DEVD(T24020DA) LOCADR(0A) RMTLOCNAME(CICS) +
9900             ONLINE(*NO) CTL(P24020D) APPID(DSVE) +
10000             HOST(*CICS) TEXT('LU 0/ SNUF to CICS')
10100
10200 /* RJE SESSIONS */
10300         CRTDEVHOST DEVD(T24020DB) LOCADR(0B) RMTLOCNAME(JES2A) +
10400             ONLINE(*NO) CTL(P24020D) APPTYPE(*RJE) +
10500             TEXT('RJE Session')
10600         CRTDEVHOST DEVD(T24020DC) LOCADR(0C) RMTLOCNAME(JES2B) +
5728PW1 R01M02 881028             SEU SOURCE LISTING
SOURCE FILE . . . . . CMNLIB/QCLSRC
MEMBER . . . . . L24020
SEQNBR*...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
10700             ONLINE(*NO) CTL(P24020D) APPTYPE(*RJE) +
10800             TEXT('RJE Session')
10900         CRTDEVHOST DEVD(T24020DD) LOCADR(0D) RMTLOCNAME(JES2C) +
11000             ONLINE(*NO) CTL(P24020D) APPTYPE(*RJE) +
11100             TEXT('RJE Session')
11200 /* HCF/DHCF SESSIONS */
11300         CRTDEVDSP DEVD(T24020DE) DEVCLS(*RMT) TYPE(3277) +
11400             MODEL(*DHCF) LOCADR(0E) ONLINE(*NO) +
11500             CTL(P24020D) TEXT('HCF/DHCF')
11600         CRTDEVDSP DEVD(T24020DF) DEVCLS(*RMT) TYPE(3277) +
11700             MODEL(*DHCF) LOCADR(0F) ONLINE(*NO) +
11800             CTL(P24020D) TEXT('HCF/DHCF')
11900         CRTDEVDSP DEVD(T24020DG) DEVCLS(*RMT) TYPE(3277) +
12000             MODEL(*DHCF) LOCADR(10) ONLINE(*NO) +
12100             CTL(P24020D) TEXT('HCF/DHCF')
12200         CRTDEVDSP DEVD(T24020DH) DEVCLS(*RMT) TYPE(3277) +
12300             MODEL(*DHCF) LOCADR(11) ONLINE(*NO) +
12400             CTL(P24020D) TEXT('HCF/DHCF')
12500         CRTDEVDSP DEVD(T24020DI) DEVCLS(*RMT) TYPE(3277) +
12600             MODEL(*DHCF) LOCADR(12) ONLINE(*NO) +
12700             CTL(P24020D) TEXT('HCF/DHCF')
12800 /* DSNX SESSIONS */
12900         CRTDEVSNUF DEVD(T24020DJ) LOCADR(13) RMTLOCNAME(NVDM) +
13000             ONLINE(*NO) CTL(P24020D) PGMSTRRQS(*YES) +
13100             RCDLEN(32761) BLKLEN(32761) DFTPGM(AAA) +
13200             TEXT('LU 0/ SNUF to NV/DM')
13300         CRTDEVSNUF DEVD(T24020DK) LOCADR(14) RMTLOCNAME(NVDM) +
13400             ONLINE(*NO) CTL(P24020D) PGMSTRRQS(*YES) +
13500             RCDLEN(32761) BLKLEN(32761) DFTPGM(AAA) +
13600             TEXT('LU 0/ SNUF to NV/DM')
13700         ENDPGM
                                     * * * * E N D   O F   S O U R C E * * * *

```


11.0 Appendix C: AS/400A CL Program for Scenario 3/4 (SNA Token-Ring)

```

100          PGM
200
300 /*****
400 /* THIS PROGRAM IS USED TO CREATE THE LINE AND CONTROL UNIT */
500 /* DESCRIPTION FOR THE TOKEN-RING CONNECTION TO THE PS/2 AND AS/400B*/
600 /*****
800
900 /* LINE NAME:      TRLIN41      RESOURCE NAME: LIN041      */
1000
1100 /* PU/CTL NAME:    TRCTLPS      */
1200 /*
1300 /* PU/CTL NAME:    TRNAS400B    */
1400 /*
1500 /* DEVICES:
1600 /*                DEVD/LU NAME      LOCADDR
1700 /*                -----
1800 /* INDEPENDENT LU  RAOTNNB1          00
2000 /*
2100          MONMSG      MSGID(CPF0000)
2200
2300          VRYCFG      CFG0BJ(L41TR) CFGTYPE(*LIN) STATUS(*OFF)
2400          DLTDEVD      DEVD(RALYAS4B)
2500          DLTDEVD      DEVD(RAOTNNB1)
2600          DLTCTLD      CTLD(TRCTLPS)
2700          DLTCTLD      CTLD(TRNAS400B)
2800          DLTIND      LIND(L41TR)
2900          CRTLINRN      LIND(L41TR) RSRNAME(LIN041) +
3000                      ADPTADR(400010020001) TEXT('Token-Ring Line +
3100                      Description')
3200          CRTCTLAPPC      CTLD(TRCTLPS) LINKTYPE(*TRLAN) +
3300                      SWTLINLST(L41TR) RMTNETID(USIBMRA) +
3400                      RMTCPNAME(PS2) INLCNN(*ANS) +
3500                      ADPTADR(400000000045) CPSSN(*NO) +
3600                      NODETYPE(*LENNODE) TEXT('CTL DESCRIPTION +
3700                      FOR PS/2')
3800          CRTCTLAPPC      CTLD(TRNAS400B) LINKTYPE(*TRLAN) +
3900                      SWTLINLST(L41TR) RMTNETID(USIBMRA) +
4000                      RMTCPNAME(RALYAS4B) ADPTADR(400010020002) +
4100                      NODETYPE(*NETNODE) TEXT('APPC Controller +
4200                      Description for AS/400B')
3200          CRTCTLAPPC      CTLD(TRCTLPS0S2) LINKTYPE(*TRLAN) +
3300                      SWTLINLST(L41TR) RMTNETID(USIBMRA) +
3400                      RMTCPNAME(PS2) INLCNN(*ANS) +
3500                      ADPTADR(4000000001111) CPSSN(*NO) +
3600                      NODETYPE(*LENNODE) TEXT('CTL DESCRIPTION +
3700                      FOR PS/2 OS/2')
4300          ENDPGM

```

12.0 Appendix D: Listing of NCP Definitions for the Residency

```

NCPOPT  OPTIONS NEWDEFN=(YES,ECHO),USERGEN=(FNMNDFGN)
***** 00002008
*      OPTIONS DEFINITION STATEMENT * 00003008
***** 00004008
*NCPOPT OPTIONS  NEWDEFN=YES,USERGEN=(FNMNDFGN) NTRI AND NPM SUPPORT 00005008
* MAKE SURE OPTIONS MACRO IS THE FIRST LINE OF NCP 00006008
* LINES BEFORE OPTIONS MACRO WILL NOT BE COPY TO SYSPUNCH 00007008
***** 00008008
***** 00010008
*      NEWNAME = RAONCP0 * *      UNITSZ = 152 * 00020008
***** N *      MAXBFRU = 34 * 00030008
*      * P *      MAXSUBA = ENA * 00040008
* ACF/NCP V4.3 FOR 3725 * A *      MAXSUBA = 31 NET X * 00050008
* (05/31/89) * *      SUBAREA = 24 NATIVE NET * 00060008
* * *      SUBAREA = 11 ATTD. NET * 00070008
* * * * 00080008
***** 00090008
* MODIFICATIONS: 05/26/88 HEINZ * 00100008
* THIS IS FOR THE NEW NETWORK ==> USIBMRA <===== * 00110008
* NEW CDRMS RAB RAK RA3 RAP * 00120008
* PATH TO 12 AND 13 ADDED * 00130008
* MODIFICATIONS: * 00140008
* PU 2.1 DEFINITIONS ADDED FOR GER ROOVERS 16 MAY 1989 CARLA * 00196008
* TR DEFINITIONS ADDED FOR DIAZ 31 MAY 1989 HEINZ * 00196008
* NEW PATHES FROM RSET3 31 MAY 1989 HEINZ * 00196008
***** 00200008
***** 00210008
* * 00220008
* CHANNEL ATTACHED TO SUBAREA 11 * 00230008
* CHANNEL ATTACHED TO SUBAREA 21 * 00240008
* CHANNEL ATTACHED TO SUBAREA 20 * 00250008
***** 00260008
* PORT * LINENAME * OWNER * PU INDEX. WEIGHT * 00270008
* 20 * RAOL0020 * ROOVERS * 07 08 09 1B * 00480008
* 25 * RAOL0025 * SADTLER * 13 * 00530008
* * * 00560008
* LIC TYPE 3 * 00570008
* * 00580008
* 32 * RAOH1MKU * * 19 * 00590008
* 36 * RAOL0036 * * 18 * 00600008
* 40 * RAOH1RAQ * SADTLER * 1C * 00610008
* 44 * RAOH2RAQ * SADTLER * 1A * 00620008
***** 00630008
* * 00640008
***** 00650008
* PCCU'S MACRO SPECIFICATIONS * 00660008
***** 00670008
* * 00680008
***** 00700008
***** 00710008
PCCUB096 PCCU CUADDR=096, V/M IS C9F *
NETID=USIBMRA, NETWORK ID *
GWCTL=ONLY, *
AUTODMP=YES, ONLY ONE AUTODMP-HOST IF TWINTAIL *
AUTOIPL=YES, ONLY ONE AUTOIPL-HOST IF TWINTAIL *
AUTOSYN=YES, USE THE ALREADY LOADED NCP IF OK *
BACKUP=YES, RESOURCE TAKEOVER PERMITTED *
CHANCON=COND, CONDITIONAL CONTACT REQ. TO NCP SENT*

```

	DUMPDS=NCPDUMP,	DUMP DATASET	*
	MDUMPDS=NCPDMOSS,	MOSS DUMP DATASET	*
	CDUMPDS=NCPDCSP,	SCANNER DUMP DATASET	*
	MAXDATA=5000,		*
	RNAME=(P12040,RAQP01),		*
	OWNER=RAB,		*
	VFYLM=YES,	VERIFY LMOD WHEN LOADING	*
	SUBAREA=11	HOSTSA VTAM VER 3 MVS	
*	STATOPT=('SA24 3725',NOMONIT)		00880008
PCCUKC9D PCCU	CUADDR=C9D,	V/M IS ALSO C9D	*
	AUTODMP=YES,	ONLY ONE AUTODMP-HOST IF TWINTAIL	*
	AUTOIPL=YES,	ONLY ONE AUTOIPL/HOST IF TWINTAIL	*
	AUTOSYN=YES,	USE THE ALREADY LOADED NCP IF OK	*
	BACKUP=YES,	RESOURCE TAKEOVER PERMITTED	*
	CHANCON=COND,	CONDITIONAL CONTACT REQ TO NCP SENT	*
	DUMPDS=NCPDUMP,	DUMP DATASET	*

```

MDUMPDS=NCPDMOSS,    MOSS DUMP DATASET      *
CDUMPDS=NCPDCSP,     SCANNER DUMP DATASET    *
MAXDATA=5000,        *                      *
OWNER=RAK,            *                      *
RNAME=(P12040,RAQP01), *                  *
VFYLM=YES,           VERIFY LMOD WHEN LOADING *
SUBAREA=20           HOSTSA   VTAM VER 3 MVS  *
* NETID=USIBMRA,      VTAM V3R2 NON-GATEWAY REQUIRED !! 01030108
* STATOPT=('SA24 3725',NOMONIT) 01040008
PCCU3096 PCCU CUADDR=096, V/M IS C9D/ WTCOSB IS 096 *
NETID=USIBMRA,        NETWORK ID              *
AUTODMP=YES,          ONLY ONE AUTODMP-HOST IF TWINTAIL *
AUTOIPL=YES,          ONLY ONE AUTOIPL-HOST IF TWINTAIL *
AUTOSYN=YES,          USE THE ALREADY LOADED NCP IF OK *
BACKUP=YES,           RESOURCE TAKEOVER PERMITTED *
CHANCON=COND,         CONDITIONAL CONTACT REQ. TO NCP SENT*
DUMPDS=NCPDUMP,       DUMP DATASET            *
MDUMPDS=NCPDMOSS,     MOSS DUMP DATASET      *
CDUMPDS=NCPDCSP,     SCANNER DUMP DATASET    *
MAXDATA=5000,        *                      *
OWNER=RA3,            *                      *
VFYLM=YES,           VERIFY LMOD WHEN LOADING *
SUBAREA=03           HOSTSA   VTAM VER 2 MVS  *
* RNAME=(P13068),      01190008
* STATOPT=('SA24 3725',NOMONIT) 01200008
*                                01210008
***** 01220008
* BUILD MACRO SPECIFICATIONS * 01230008
***** 01240008
NCPBUILD BUILD VERSION=V4R3, # NCP V4 REL3 *
ADDSESS=20,                ENOUGH BLOCKS DEFINED IN RESSCB *
AUXADDR=10,                ADDITIONAL PLU ADDRESSES FOR ILU *
BFRS=(128),                NCP BUFFER SIZE,EP FREE BUFFER *
BRANCH=500,                BRANCH TRACE ENTRIES V3*
CATRACE=(YES,100),         CHANNEL ADAPTER TRACE V3*
CSMHDR=27F5C711C3F0405C40C8C4D9405C, 3270 CRITSIT HEADER*
CSMHDRC=40E3C5E7E3405C5C, 3270 CRITST HEADER EXTRA TEXT *
CSMSG=C3D9C9E3E2C9E35A40E385819440F040, CRITSIT MESG *
CSMSGC=6040C1D5E240828587A4954B, CRITST MESG EXTRA TEXT *
CWALL=26,                 MIN. BUFFERS BEFORE SLOWDOWN *
DSABLTO=6.5,              *
ENABLTO=6.5,              IBM 386X REQUIRE 6.5 AS MINIMUM *
LOADLIB=NCPLoad,         LIB FOR LOAD MODULE *
LTRACE=4,                SIT FOR 4 LINES *
MAXSESS=16,              MAX LU-LU SESSIONS ANY LU CAN HAVE *
MAXSSCP=8,               MAXIMUM SESSIONS FOR LU *
MODEL=3725,              !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!! *
MXRLINE=2,               *
MXVLINE=25,              *
NAMTAB=50,               # ENTRIES FOR SSCP, CP & NET NAMES *
NETID=USIBMRA,           NATIVE NETWORK *
NEWNAME=RA0NCP2,         NAME OF THIS LOAD MODULE V3*
NPA=YES,                 NPA*
NUMHSAS=25,              VR'S TO 25 HOSTS AND NCP ALLOWED *
PATHEXT=20,              DEFAULT IS 254, AND NCP ALLOWED *
SUBAREA=24,              SUBAREA ADDRESS = 24 *
TRACE=(YES,64),          64 ADDRESS-TRACE ENTRIES *
TYPGEN=NCP,              NCP ONLY *
TYP SYS=OS,              *

```

```

COSTAB=ISTSDCOS,      COS TABLE USED TO ACTIVATE ER/VR      *
VRPOOL=128,           NO OF VR'S ENDING + DEACT/REACT.      *
HSBPOOL=256,          HALF SESSION CB POOL                  *
NETLIM=128,           LIMIT HSCB USAGE OUT OF HSBPOOL        *
SESSLIM=64            NUMBER OF SESSIONS PER NAF
* # V4R3              CA=(TYPE5,TYPE5,TYPE5,TYPE5), CHANNEL ADAPTER TYPE      01581008
* # V4R3              CANETID=(USIBMRA,USIBMRA,USIBMRA,USIBMRA),              01581108
* # V4R3              DELAY=(0.2,0.2,0.2,0.2),    DELAY FOR V3 BUILD          01582008
* # V4R3              NCPA=(ACTIVE,ACTIVE,ACTIVE,ACTIVE),                    01583008
* # V4R3              TIMEOUT=(120,120,120,120),    01584008
*                    RESOEXT=64,      # NOT SUPPORT V4R3      01590008
***** 01600008
*          SYSCNTRL MACRO SPECIFICATIONS                                * 01610008
***** 01620008
NCPSSYC SYSCNTRL OPTIONS=(BHSASSC,ENDCALL,MODE,RCNTRL,RCOND,RECMD,RIMM*
,NAKLIM,SESSION,SSPAUSE,XMTLMT,STORDSP,DLRID,RDEVQ)
***** 01650008
*          GWNAU DEFINITIONS                                01660008
***** 01670008
*
*          DEFINITIONS OF THE CDRMS LOCATED IN NETWORK NETD 9370      01680008
*
*          01690008
*          01700008
***** 01710008
*          01720008
*
*          GWNAU NAME=MC314,      SNI - ID OF SSCP      *
*          NETID=NETD,           SNI - NETID              *
*          ELEMENT=2             SNI - ELEMENT ADRESS IN USIBMRA      *
*          GWNAU NAME=MK33,      SNI - ID OF SSCP      *
*          NETID=USIBMMK,        SNI - NETID              *
*          ELEMENT=3             SNI - ELEMENT ADRESS IN USIBMRA      *
*          GWNAU NAME=MK31,      SNI - ID OF SSCP      *
*          NETID=USIBMMK,        SNI - NETID              *
*          ELEMENT=4             SNI - ELEMENT ADRESS IN USIBMRA      *
*          GWNAU NAME=MK34,      SNI - ID OF SSCP      *
*          NETID=USIBMMK,        SNI - NETID              *
*          ELEMENT=5             SNI - ELEMENT ADRESS IN USIBMRA      *
*          GWNAU NAME=MK21,      SNI - ID OF SSCP      *
*          NETID=USIBMMK,        SNI - NETID              *
*          ELEMENT=6             SNI - ELEMENT ADRESS IN USIBMRA      *
*
*          01760008
***** 01770008
*          GWNAU DEFINITIONS DYNAMICALLY ASSIGNED      01780008
***** 01790008
*          01800008
*          GWNAU NUMADDR=512      DYNAMICALLY ASSIGNED NAF"S
*
*          01820008
*          01830008
***** 02730000
*          DYNAMIC RECONFIGURATION POOL SPACE      * 03130000
***** 03140000
*          03150000
***** 01840008
*          HOST MACRO SPECIFICATIONS                                * 01850008
***** 01860008
RAB      HOST INBFRS=10,      NCP BUFFERS ALLOCATION      *
*          MAXBFRU=34,        UP TO 34 VTAM BUFFERS SHIPPED      *
*          UNITSZ=152,        VTAM IO BUFFERS SIZE              *
*          BFRPAD=0,          BUFFER PAD (MANDATORY FOR ACF)      *
*          SUBAREA=(11),      CHANNEL ATTACHED HOSTSA REL 3      *

```



```

      NETID=USIBMRA      NETWORK ID
RAK  HOST INBFRS=10,      NCP BUFFERS ALLOCATION      *
      MAXBFRU=34,        UP TO 34 VTAM BUFFERS SHIPPED  *
      UNITSZ=152,        VTAM IO BUFFERS SIZE          *
      BFRPAD=0,          BUFFER PAD (MANDATORY FOR ACF) *
      SUBAREA=(20)       CHANNEL ATTACHED HOSTSA REL 3
*      NETID=USIBMRA      NETWORK ID                  01980008
***** 02050008
*      DYNAMIC RECONFIGURATION POOL SPACE              * 02060008
***** 02070008
* 02080008
DRP00LPU PUDRPOOL NUMBER=25      CAN ADD 25 PUS
* 02110008
DRP00LLU LUDRPOOL NUMILU=32,      RESERVE 32 ILUS      *
      NUMTYP1=10,        RESERVE 10 LUS ON PU.T1 PUS    *
      NUMTYP2=200        RESERVE 200 LUS ON PU.T2 PUS
***** 02150008
*      PATH SPECIFICATIONS FOR OTHER NCPS AND HOSTS    * 02160008
***** 02170008
***** 02180008
***** PATHSNI ***** 02190008
***** 02200008
* 02210008
*      PATH UPDATED 05/31/89 BY HEINZ                  02220008
*      RTG SET RSET3                                    02230008
***** 03000008
* NCP24
      PATH DESTSA=3,
      ER0=(11,1,5000,5000,5000,20000),
      VR0=0,
      VRPWS00=(2,6),VRPWS01=(2,6),VRPWS02=(2,6)
      PATH DESTSA=11,
      ER1=(11,1),
      ER2=(20,1,5000,5000,5000,20000),
      VR0=1,
      VRPWS00=(1,3),VRPWS01=(1,3),VRPWS02=(1,3),
      VR1=2,
      VRPWS10=(2,6),VRPWS11=(2,6),VRPWS12=(2,6)
      PATH DESTSA=20,
      ER1=(20,1),
      ER2=(11,1),
      ER3=(11,1),
      VR0=1,
      VRPWS00=(1,3),VRPWS01=(1,3),VRPWS02=(1,3),
      VR1=2,
      VRPWS10=(2,6),VRPWS11=(2,6),VRPWS12=(2,6),
      VR2=3,
      VRPWS20=(4,12),VRPWS21=(4,12),VRPWS22=(4,12)
      PATH DESTSA=25,
      ER1=(20,1),
      VR0=1,
      VRPWS00=(2,6),VRPWS01=(2,6),VRPWS02=(2,6)
      PATH DESTSA=28,
      ER2=(20,1),
      VR0=2,
      VRPWS00=(2,6),VRPWS01=(2,6),VRPWS02=(2,6)
      PATH DESTSA=5,
      ER0=(11,1),
      VR0=0,

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        VRPWS00=(2,6),VRPWS01=(2,6),VRPWS02=(2,6)
PATH DESTSA=6,
    ER4=(11,1),
    VR0=4,
    VRPWS00=(2,6),VRPWS01=(2,6),VRPWS02=(2,6)
PATH DESTSA=7,
    ER4=(11,1),
    VR0=4,
    VRPWS00=(2,6),VRPWS01=(2,6),VRPWS02=(2,6)
PATH DESTSA=8,
    ER3=(20,1),
    VR0=3,
    VRPWS00=(2,6),VRPWS01=(2,6),VRPWS02=(2,6)
PATH DESTSA=9,
    ER3=(11,1),
    VR0=3,
    VRPWS00=(2,6),VRPWS01=(2,6),VRPWS02=(2,6)
PATH DESTSA=12,
    ER2=(11,1),
    VR0=2,
    VRPWS00=(2,6),VRPWS01=(2,6),VRPWS02=(2,6)
PATH DESTSA=13,
    ER2=(11,1),
    VR0=2,
    VRPWS00=(2,6),VRPWS01=(2,6),VRPWS02=(2,6)
PATH DESTSA=22,
    ER2=(11,1),
    VR0=2,
    VRPWS00=(3,9),VRPWS01=(3,9),VRPWS02=(3,9)
PATH DESTSA=26,
    ER0=(26,8,5000,5000,5000,20000),
    VR0=0,
    VRPWS00=(1,3),VRPWS01=(1,3),VRPWS02=(1,3)
*      SDLCST STATEMENTS FOR CONFIGURABLE LINK STATIONS
*      (STATEMENT MUST PRECEDE GROUP STATEMENTS)
*****
SDL24PRI SDLCST MODE=PRI,
    GROUP=RAOGXPRI,      GROUP FOR PRIMARY LINKS
    RETRIES=(7,3,5),
    MAXOUT=7,
    PASSLIM=254
*
SDL24SEC SDLCST MODE=SEC,
    GROUP=RAOGXSEC,      GROUP FOR SECONDARY LINKS
    RETRIES=(7),
    MAXOUT=7,
    PASSLIM=254
*****
*****
*      LINE MACRO SPECIFICATION      SDLC LINK 020
*****
RAOL0020 LINE ADDRESS=(020,HALF),  TRANSMIT AND RECEIVE ADDRESSES
    NPACOLL=YES,
    ANS=CONTINUE,
    OWNER=RAB,
    ISTATUS=ACTIVE,
    DUPLEX=(FULL),
    ETRATIO=30,
    LPDATS=LPDA1,
    NPA*
    DON'T BREAK CROSS DOMAIN SESSIONS
    (V) VTAM
    REQUEST TO SEND ALWAYS UP
    DEFAULT

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MAXPU=9,          ALLOW NO MORE THAN 9 PUS ON LINE  *
SERVLIM=2,        *
SRT=(,64),        *
SPEED=(4800)      LINE SPEED IS 4800 BPS
ATTACH=MODEM,     # NOT SUPPORTED V4R3              04900008
STATOPT=('S/36,S/38',NOMONIT)                     04910008
*****
*                                                         * 04920008
*                                                         * 04930008
* SERVICE MACRO SPECIFICATION FOR SDLC (LINE 020)      * 04940008
*                                                         * 04950008
***** 04960008
SERVICE ORDER=(RAOP07,RAOP08,RAOP1B,RAOP5C,RAOP09), *
MAXLIST=9
***** 05010008
***** 05050008
* PU AND LU DEFINITIONS OF AS/400B TO SUPPORT DEPENDENT 05060009
* AND INDEPENDENT LUS 05070009
* GER ROOVERS EXT.2322 05080009
* 05090009
***** 05100010
RAOP07 PU ADDR=C1, 3270 ADDRESS='C' (EBCDIC) *
MAXDATA=265, MAXIMUM AMOUNT OF DATA *
MAXOUT=7, MAX SDLC FRAMES BEFORE RESPONSE *
PACING=(7), PACING SET BY BIND IMAGE *
ANS=CONTINUE, KEEPS CROSS-DOMAIN RUNNING *
PASSLIM=7, *
PUTYPE=2, *
RETRIES=(,1,4), 4 RETRIES, 1 SECOND BETWEEN *
DISCNT=(NO), (V) VTAM ONLY *
ISTATUS=ACTIVE, (V) VTAM ONLY *
VPACING=8, (V) VTAM ONLY *
XID=YES
* STATOPT='AS400B T2.1' 05270010
***** 05280009
* DEFINITIONS FOR AS/400B * 05290009
* RAOTNN00 TO 03 INDEPENDENT LUS 05300012
* RAOTNN04 TO 05 INDEPENDENT LUS TO CICS 05310012
* RAOT0701 TO 04 FOR 3270 EMULATION (4 LUS) * 05320009
* RAOT0705 TO 07 FOR APPC SESSIONS WITH CICS (3 LUS) * 05330009
* RAOT0708 FOR LU 0 SESSIONS WITH CICS (1 LU) * 05340009
* RAOT0709 TO 0A FOR DSX (2 LUS) * 05350009
* RAOT070B TO 0D FOR RJE (3 LUS) * 05360009
* RAOT070E TO 0I FOR HCF (5 LUS) * 05370009
* 05380009
***** 05390009
RAOTNN00 LU RESSCB=4, INDEPENDENT LU *
LOCADDR=0, *
MODETAB=MTGS3X, *
DLOGMOD=MODS361, *
ISTATUS=ACTIVE
* STATOPT=INDEPENDENT LU 05440010
RAOTNN01 LU RESSCB=4, INDEPENDENT LU *
LOCADDR=0, *
MODETAB=MTGS3X, *
DLOGMOD=MODS361, *
ISTATUS=ACTIVE
* STATOPT=INDEPENDENT LU 05490010
RAOTNN02 LU RESSCB=4, INDEPENDENT LU *
LOCADDR=0, *

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	MODETAB=MTGS3X,		*
	DLOGMOD=MODS361,		*
	ISTATUS=ACTIVE		
*	STATOPT=INDEPENDENT LU		05540010
RA0TNN03 LU	RESSCB=4,	INDEPENDENT LU	*
	LOCADDR=0,		*
	MODETAB=MTGS3X,		*
	DLOGMOD=MODS361,		*
	ISTATUS=ACTIVE		
*	STATOPT=INDEPENDENT LU		05590010
RA0TNN04 LU	RESSCB=4,	INDEPENDENT LU TO CICS	*
	LOCADDR=0,		*
	MODETAB=MTGS3X,		*
	DLOGMOD=MODS361,		*
	ISTATUS=ACTIVE		
*	STATOPT=INDEPENDENT LU		05640010
RA0TNN05 LU	RESSCB=4,	INDEPENDENT LU TO CICS	*
	LOCADDR=0,		*
	MODETAB=MTGS3X,		*
	DLOGMOD=MODS361,		*
	ISTATUS=ACTIVE		
*	STATOPT=INDEPENDENT LU		05690010
RA0T0701 LU	LOCADDR=1,	3270 EMULATION	*
	MODETAB=MTGS3X,		*
	USSTAB=US327X,		*
	DLOGMOD=EM3278,		*
	ISTATUS=ACTIVE		
RA0T0702 LU	LOCADDR=2,	3270 EMULATION	*
	MODETAB=MTGS3X,		*
	USSTAB=US327X,		*
	DLOGMOD=EM3278,		*
	ISTATUS=ACTIVE		
RA0T0703 LU	LOCADDR=3,	3270 EMULATION	*
	MODETAB=MTGS3X,		*
	USSTAB=US327X,		*
	DLOGMOD=EM3278,		*
	ISTATUS=ACTIVE		
RA0T0704 LU	LOCADDR=4,	3270 EMULATION	*
	MODETAB=MTGS3X,		*
	USSTAB=US327X,		*
	DLOGMOD=EM3278,		*
	ISTATUS=ACTIVE		
*-----			05900009
RA0T0705 LU	LOCADDR=5,	APPC SESSIONS WITH CICS	*
	MODETAB=MTGS3X,		*
	DLOGMOD=MODS361,		*
	LOGAPPL=CICS11,		*
	ISTATUS=ACTIVE		
RA0T0706 LU	LOCADDR=6,	APPC SESSIONS WITH CICS	*
	MODETAB=MTGS3X,		*
	DLOGMOD=MODS361,		*
	LOGAPPL=CICS11,		*
	ISTATUS=ACTIVE		
RA0T0707 LU	LOCADDR=7,	APPC SESSIONS WITH CICS	*
	MODETAB=MTGS3X,		*
	DLOGMOD=MODS361,		*
	LOGAPPL=CICS11,		*

* DEFINITIONS FOR S/36B	* 06270009
* RAOTNNA0 TO A3 INDEPENDENT LU SUPPORT	* 06280009
* RAOTNNA4 TO A5 INDEPENDENT LU SUPPORT TO CICS	* 06290009
* RAOT0801 TO 04 FOR 3270 EMULATION (4 LUS)	* 06300009
* RAOT0805 TO 07 FOR APPC SESSIONS WITH CICS (3 LUS)	* 06310009
* RAOT0808 FOR LU 0 SESSIONS WITH CICS (1 LU)	* 06320009
* RAOT0809 TO 0A FOR DSX (2 LUS)	* 06330009
* RAOT080B TO 0D FOR RJE (3 LUS)	* 06340009
* RAOT080E TO 01 FOR HCF (5 LUS)	* 06350009
*	* 06360009
*****	* 06370009
RAOTNNA0 LU RESSCB=4, INDEPENDENT LU	*
LOCADDR=0,	*
MODETAB=MTGS3X,	*
DLOGMOD=MODS361,	*
ISTATUS=ACTIVE	
* STATOPT='INDEPENDENT LU'	06420010
RAOTNNA1 LU RESSCB=4, INDEPENDENT LU	*
LOCADDR=0,	*
MODETAB=MTGS3X,	*
DLOGMOD=MODS361,	*
ISTATUS=ACTIVE	
* STATOPT='INDEPENDENT LU'	06470010
RAOTNNA2 LU RESSCB=4, INDEPENDENT LU	*
LOCADDR=0,	*
MODETAB=MTGS3X,	*
DLOGMOD=MODS361,	*
ISTATUS=ACTIVE	
* STATOPT='INDEPENDENT LU'	06520010
RAOTNNA3 LU RESSCB=4, INDEPENDENT LU	*
LOCADDR=0,	*
MODETAB=MTGS3X,	*
DLOGMOD=MODS361,	*
ISTATUS=ACTIVE	
* STATOPT='INDEPENDENT LU'	06570010
RAOTNNA4 LU RESSCB=4, INDEPENDENT LU TO CICS	*
LOCADDR=0,	*
MODETAB=MTGS3X,	*
DLOGMOD=MODS361,	*
ISTATUS=ACTIVE	
* STATOPT='INDEPENDENT LU'	06620010
RAOTNNA5 LU RESSCB=4, INDEPENDENT LU TO CICS	*
LOCADDR=0,	*
MODETAB=MTGS3X,	*
DLOGMOD=MODS361,	*
ISTATUS=ACTIVE	
* STATOPT='INDEPENDENT LU'	06670010
RAOT0801 LU LOCADDR=1, 3270 EMULATION	*
MODETAB=MTGS3X,	*
USSTAB=US327X,	*
DLOGMOD=EM3278,	*
ISTATUS=ACTIVE	
RAOT0802 LU LOCADDR=2, 3270 EMULATION	*
MODETAB=MTGS3X,	*
USSTAB=US327X,	*
DLOGMOD=EM3278,	*
ISTATUS=ACTIVE	
RAOT0803 LU LOCADDR=3, 3270 EMULATION	*
MODETAB=MTGS3X,	*

USSTAB=US327X,		*
DLOGMOD=EM3278,		*
ISTATUS=ACTIVE		
RAOT0804 LU LOCADDR=4,	3270 EMULATION	*
MODETAB=MTGS3X,		*
USSTAB=US327X,		*
DLOGMOD=EM3278,		*
ISTATUS=ACTIVE		
*-----		06880009
RAOT0805 LU LOCADDR=5,	APPC SESSIONS WITH CICS	*
MODETAB=MTGS3X,		*
DLOGMOD=MODS361,		*
LOGAPPL=CICS11,		*
ISTATUS=ACTIVE		
RAOT0806 LU LOCADDR=6,	APPC SESSIONS WITH CICS	*
MODETAB=MTGS3X,		*
DLOGMOD=MODS361,		*
LOGAPPL=CICS11,		*
ISTATUS=ACTIVE		
RAOT0807 LU LOCADDR=7,	APPC SESSIONS WITH CICS	*
MODETAB=MTGS3X,		*
DLOGMOD=MODS361,		*
LOGAPPL=CICS11,		*
ISTATUS=ACTIVE		
*-----		06968009
RAOT0808 LU LOCADDR=8,	LU 0 SESSIONS WITH CICS	*
MODETAB=MTGS3X,		*
DLOGMOD=SNUF36,		*
ISTATUS=ACTIVE		
*-----		06969409
RAOT0809 LU LOCADDR=9,	DSNX	*
MODETAB=MTGS3X,		*
ISTATUS=ACTIVE		
RAOT080A LU LOCADDR=10,	DSNX	*
MODETAB=MTGS3X,		*
ISTATUS=ACTIVE		
*-----		06970109
RAOT080B LU LOCADDR=11,	MSRJE	*
MODETAB=MTGS3X,		*
DLOGMOD=RJES36,		*
ISTATUS=ACTIVE		
RAOT080C LU LOCADDR=12,	MSRJE	*
MODETAB=MTGS3X,		*
DLOGMOD=RJES36,		*
ISTATUS=ACTIVE		
RAOT080D LU LOCADDR=13,	MSRJE	*
MODETAB=MTGS3X,		*
DLOGMOD=RJES36,		*
ISTATUS=ACTIVE		
*-----		06971409
RAOT080E LU LOCADDR=14,	DHCF	*
ISTATUS=ACTIVE		
RAOT080F LU LOCADDR=15,	DHCF	*
ISTATUS=ACTIVE		
RAOT080G LU LOCADDR=16,	DHCF	*
ISTATUS=ACTIVE		
RAOT080H LU LOCADDR=17,	DHCF	*
ISTATUS=ACTIVE		
RAOT080I LU LOCADDR=18,	DHCF	*

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                                ISTATUS=ACTIVE
***** 06973008
*   PU/LU MACRO FOR S/38                      * 06980008
***** 06990008
*                                           07000009
*   PU AND LU DEFINITIONS FOR S/38A TO SUPPORT 07010009
*   DEPENDENT AND INDEPENDENT LUS             07020009
*   GER ROOVERS      EXT.2322                 07030009
***** 07040009
RAOP09  PU ADDR=C3,          3270 ADDRESS='C' (EBCDIC) *
          MAXDATA=265,        MAXIMUM AMOUNT OF DATA *
          MAXOUT=7,           MAX SDLC FRAMES BEFORE RESPONSE *
          PACING=(7),         PACING SET BY BIND IMAGE *
          ANS=CONTINUE,       KEEPS CROSS-DOMAIN RUNNING *
          PASSLIM=7,          *
          PUTYPE=2,           *
          RETRIES=(,1,4),     4 RETRIES, 1 SECOND BETWEEN *
          DISCNT=(NO),        (V) VTAM ONLY *
          ISTATUS=ACTIVE,     (V) VTAM ONLY *
          VPACING=8,          (V) VTAM ONLY *
          XID=YES *
          STATOPT='S/38A T2.1' 07210010
***** 07220009
*   DEFINITIONS FOR S/38 * 07230009
*   RAOTNNC0 TO C3 INDEPENDENT LUS 07240009
*   RAOTNNC4 TO C5 INDEPENDENT LUS TO CICS 07250009
*   RAOT0901 TO 04 FOR 3270 EMULATION (4 LUS) * 07260009
*   RAOT0905 TO 07 FOR APPC SESSIONS WITH CICS (3 LUS) * 07270009
*   RAOT0908 TO 08 FOR LU 0 SESSIONS WITH CICS (1 LU) * 07280009
*   RAOT0909 TO 0D FOR RJE (5 LUS) * 07290009
*   RAOT090E TO 0I FOR HCF (5 LUS) * 07300009
*   RAOT090J FOR REMOTE MANAGEMENT TEST (1 LU) * 07310009
* * 07320009
***** 07330009
RAOTNNC0 LU RESSCB=4, INDEPENDENT LU *
          LOCADDR=0, *
          MODETAB=MTGS3X, *
          DLOGMOD=MODS361, *
          ISTATUS=ACTIVE *
          STATOPT='INDEPENDENT LU' 07380010
RAOTNNC1 LU RESSCB=4, INDEPENDENT LU *
          LOCADDR=0, *
          MODETAB=MTGS3X, *
          DLOGMOD=MODS361, *
          ISTATUS=ACTIVE *
          STATOPT='INDEPENDENT LU' 07430010
RAOTNNC2 LU RESSCB=4, INDEPENDENT LU *
          LOCADDR=0, *
          MODETAB=MTGS3X, *
          DLOGMOD=MODS361, *
          ISTATUS=ACTIVE *
          STATOPT='INDEPENDENT LU' 07480010
RAOTNNC3 LU RESSCB=4, INDEPENDENT LU *
          LOCADDR=0, *
          MODETAB=MTGS3X, *
          DLOGMOD=MODS361, *
          ISTATUS=ACTIVE *
          STATOPT='INDEPENDENT LU' 07530010
RAOTNNC4 LU RESSCB=4, INDEPENDENT LU TO CICS *

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LOCADDR=0,		*
MODETAB=MTGS3X,		*
DLOGMOD=MODS361,		*
ISTATUS=ACTIVE		
* STATOPT='INDEPENDENT LU'		07580010
RAOT0905 LU RESSCB=4,	INDEPENDENT LU TO CICS	*
LOCADDR=0,		*
MODETAB=MTGS3X,		*
DLOGMOD=MODS361,		*
ISTATUS=ACTIVE		
* STATOPT='INDEPENDENT LU'		07630010
RAOT0901 LU LOCADDR=1,	3270 EMULATION	*
MODETAB=MTGS3X,		*
USSTAB=US327X,		*
DLOGMOD=EM3277,		*
ISTATUS=ACTIVE		
RAOT0902 LU LOCADDR=2,	3270 EMULATION	*
MODETAB=MTGS3X,		*
USSTAB=US327X,		*
DLOGMOD=EM3277,		*
ISTATUS=ACTIVE		
RAOT0903 LU LOCADDR=3,	3270 EMULATION	*
MODETAB=MTGS3X,		*
USSTAB=US327X,		*
DLOGMOD=EM3277,		*
ISTATUS=ACTIVE		
RAOT0904 LU LOCADDR=4,	3270 EMULATION	*
MODETAB=MTGS3X,		*
USSTAB=US327X,		*
DLOGMOD=EM3277,		*
ISTATUS=ACTIVE		
*-----		07840009
RAOT0905 LU LOCADDR=5,	APPC SESSIONS WITH CICS	*
MODETAB=MTGS3X,		*
DLOGMOD=MS38APPC,		*
LOGAPPL=CICS11,		*
ISTATUS=ACTIVE		
RAOT0906 LU LOCADDR=6,	APPC SESSIONS WITH CICS	*
MODETAB=MTGS3X,		*
DLOGMOD=MS38APPC,		*
LOGAPPL=CICS11,		*
ISTATUS=ACTIVE		
RAOT0907 LU LOCADDR=7,	APPC SESSIONS WITH CICS	*
MODETAB=MTGS3X,		*
DLOGMOD=MS38APPC,		*
LOGAPPL=CICS11,		*
ISTATUS=ACTIVE		
*-----		07982009
RAOT0908 LU LOCADDR=8,	LU 0 SESSIONS WITH CICS	*
MODETAB=MTGS3X,		*
DLOGMOD=SNUF36,		*
ISTATUS=ACTIVE		
*-----		07987009
RAOT0909 LU LOCADDR=9,	MSRJE	*
MODETAB=MTGS3X,		*
DLOGMOD=S38RJE,		*
ISTATUS=ACTIVE		
RAOT090A LU LOCADDR=10,	MSRJE	*
MODETAB=MTGS3X,		*

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        DLOGMOD=S38RJE,
        ISTATUS=ACTIVE
RAOT090B LU LOCADDR=11,      MSRJE
        MODETAB=MTGS3X,
        DLOGMOD=S38RJE,
        ISTATUS=ACTIVE
RAOT090C LU LOCADDR=12,      MSRJE
        MODETAB=MTGS3X,
        DLOGMOD=S38RJE,
        ISTATUS=ACTIVE
RAOT090D LU LOCADDR=13,      MSRJE
        MODETAB=MTGS3X,
        DLOGMOD=S38RJE,
        ISTATUS=ACTIVE
*----- 07990909
RAOT090E LU LOCADDR=14,      DHCF
        ISTATUS=ACTIVE
RAOT090F LU LOCADDR=15,      DHCF
        ISTATUS=ACTIVE
RAOT090G LU LOCADDR=16,      DHCF
        ISTATUS=ACTIVE
RAOT090H LU LOCADDR=17,      DHCF
        ISTATUS=ACTIVE
RAOT090I LU LOCADDR=18,      DHCF
        ISTATUS=ACTIVE
*----- 07992009
RAOT090J LU LOCADDR=19,      REMOTE MANAGEMENT TEST
        MODETAB=MTGS3X,
        DLOGMOD=S3767,
        ISTATUS=ACTIVE
***** 07993008
*   PU/LU MACRO RESERVED FOR THE OLYMPIC
***** 08000008
***** 08010008
*RAOP1B  PU   ADDR=C3,      3270 ADDRESS='C' (EBCDIC)      X 08020008
*
*   PU AND LU DEFINITION FOR AS/400A
*   FOR SUPPORT DEPENDENT AND INDEPENDENT LUS
*   GER ROOVERS      EXT.2322
*
***** 08025009
***** 08026010
RAOP1B  PU ADDR=C4,      3270 ADDRESS='C' (EBCDIC)
        MAXDATA=265,      MAXIMUM AMOUNT OF DATA
        MAXOUT=7,          MAX SDLC FRAMES BEFORE RESPONSE
        PACING=(7),        PACING SET BY BIND IMAGE
        ANS=CONTINUE,      KEEPS CROSS-DOMAIN RUNNING
        PASSLIM=7,
        PUTYPE=2,
        RETRIES=(,1,4),    4 RETRIES, 1 SECOND BETWEEN
        DISCNT=(NO),       (V) VTAM ONLY
        ISTATUS=ACTIVE,    (V) VTAM ONLY
        VPACING=8,         (V) VTAM ONLY
        XID=YES
*   STATOPT='AS/400 T2.1'
***** 08030410
***** 08030509
*   DEFINITIONS FOR AS/400A
*   RAOTNNB0 TO B3      INDEPENDENT LUS
*   RAOTNNB4 TO B5      INDEPENDENT LUS TO CICS
*   RAOT1B01 TO 04      FOR 3270 EMULATION (4 LUS)
*   RAOT1B05 TO 07      FOR APPC SESSIONS WITH CICS (3 LUS)

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* RAOT1B08 TO 08	FOR LU 0 SESSIONS WITH CICS (1 LU)	* 08031109
* RAOT1B09 TO 0D	FOR RJE (5 LUS)	* 08031209
* RAOT1B0E TO 0I	FOR HCF (5 LUS)	* 08031309
* RAOT1B0J	FOR REMOTE MANAGEMENT TEST (1 LU)	* 08031409
*		* 08031509
*****		08031609
RAOTNNB0 LU RESSCB=4,	INDEPENDENT LU	*
LOCADDR=0,		*
MODETAB=MTGS3X,		*
DLOGMOD=MODS361,		*
ISTATUS=ACTIVE		
* STATOPT='INDEPENDENT LU'		08032210
RAOTNNB1 LU RESSCB=4,	INDEPENDENT LU	*
LOCADDR=0,		*
MODETAB=MTGS3X,		*
DLOGMOD=MODS361,		*
ISTATUS=ACTIVE		
* STATOPT='INDEPENDENT LU'		08032810
RAOTNNB2 LU RESSCB=4,	INDEPENDENT LU	*
LOCADDR=0,		*
MODETAB=MTGS3X,		*
DLOGMOD=MODS361,		*
ISTATUS=ACTIVE		
* STATOPT='INDEPENDENT LU'		08033410
RAOTNNB3 LU RESSCB=4,	INDEPENDENT LU	*
LOCADDR=0,		*
MODETAB=MTGS3X,		*
DLOGMOD=MODS361,		*
ISTATUS=ACTIVE		
* STATOPT='INDEPENDENT LU'		08034010
RAOTNNB4 LU RESSCB=4,	INDEPENDENT LU TO CICS	*
LOCADDR=0,		*
MODETAB=MTGS3X,		*
DLOGMOD=MODS361,		*
ISTATUS=ACTIVE		
* STATOPT='INDEPENDENT LU'		08034610
RAOTNNB5 LU RESSCB=4,	INDEPENDENT LU TO CICS	*
LOCADDR=0,		*
MODETAB=MTGS3X,		*
DLOGMOD=MODS361,		*
ISTATUS=ACTIVE		
* STATOPT='INDEPENDENT LU'		08035210
RAOT1B01 LU LOCADDR=1,	3270 EMULATION	*
MODETAB=MTGS3X,		*
USSTAB=US327X,		*
DLOGMOD=EM3277,		*
ISTATUS=ACTIVE		
RAOT1B02 LU LOCADDR=2,	3270 EMULATION	*
MODETAB=MTGS3X,		*
USSTAB=US327X,		*
DLOGMOD=EM3277,		*
ISTATUS=ACTIVE		
RAOT1B03 LU LOCADDR=3,	3270 EMULATION	*
MODETAB=MTGS3X,		*
USSTAB=US327X,		*
DLOGMOD=EM3277,		*
ISTATUS=ACTIVE		
RAOT1B04 LU LOCADDR=4,	3270 EMULATION	*
MODETAB=MTGS3X,		*

USSTAB=US327X,		*
DLOGMOD=EM3277,		*
ISTATUS=ACTIVE		
*-----		08037309
RAOT1B05 LU LOCADDR=5,	APPC SESSIONS WITH CICS	*
MODETAB=MTGS3X,		*
DLOGMOD=MSOLAPPC,		*
LOGAPPL=CICS11,		*
ISTATUS=ACTIVE		
RAOT1B06 LU LOCADDR=6,	APPC SESSIONS WITH CICS	*
MODETAB=MTGS3X,		*
DLOGMOD=MSOLAPPC,		*
LOGAPPL=CICS11,		*
ISTATUS=ACTIVE		
RAOT1B07 LU LOCADDR=7,	APPC SESSIONS WITH CICS	*
MODETAB=MTGS3X,		*
DLOGMOD=MSOLAPPC,		*
LOGAPPL=CICS11,		*
ISTATUS=ACTIVE		
*-----		08038909
RAOT1B08 LU LOCADDR=8,	LU 0 SESSIONS WITH CICS	*
MODETAB=MTGS3X,		*
DLOGMOD=SNUF36,		*
ISTATUS=ACTIVE		
*-----		08039409
RAOT1B09 LU LOCADDR=9,	MSRJE	*
MODETAB=MTGS3X,		*
DLOGMOD=S38RJE,		*
ISTATUS=ACTIVE		
RAOT1B0A LU LOCADDR=10,	MSRJE	*
MODETAB=MTGS3X,		*
DLOGMOD=S38RJE,		*
ISTATUS=ACTIVE		
RAOT1B0B LU LOCADDR=11,	MSRJE	*
MODETAB=MTGS3X,		*
DLOGMOD=S38RJE,		*
ISTATUS=ACTIVE		
RAOT1B0C LU LOCADDR=12,	MSRJE	*
MODETAB=MTGS3X,		*
DLOGMOD=S38RJE,		*
ISTATUS=ACTIVE		
RAOT1B0D LU LOCADDR=13,	MSRJE	*
MODETAB=MTGS3X,		*
DLOGMOD=S38RJE,		*
ISTATUS=ACTIVE		
*-----		08041509
RAOT1B0E LU LOCADDR=14,	DHCF	*
ISTATUS=ACTIVE		
RAOT1B0F LU LOCADDR=15,	DHCF	*
ISTATUS=ACTIVE		
RAOT1B0G LU LOCADDR=16,	DHCF	*
ISTATUS=ACTIVE		
RAOT1B0H LU LOCADDR=17,	DHCF	*
ISTATUS=ACTIVE		
RAOT1B0I LU LOCADDR=18,	DHCF	*
ISTATUS=ACTIVE		
*-----		08042609
RAOT1B0J LU LOCADDR=19,	REMOTE MANAGEMENT TEST	*
MODETAB=MTGS3X,		*

```

DLOGMOD=S3767,
ISTATUS=ACTIVE
***** 08043113
* PU/LU MACRO RESERVED FOR THE PS/2 * 08043213
***** 08043313
* PU AND LU DEFINITION FOR PS/2 PC SUPPORT 05/16/89 08043613
* FOR SUPPORT DEPENDENT AND INDEPENDENT LUS 08043713
* GER ROOVERS EXT.2322 08043813
* 08043913
***** 08044013
RAOP5C PU ADDR=C5, 3270 ADDRESS='C' (EBCDIC) *
MAXDATA=265, MAXIMUM AMOUNT OF DATA *
MAXOUT=7, MAX SDLC FRAMES BEFORE RESPONSE *
PACING=(7), PACING SET BY BIND IMAGE *
ANS=CONTINUE, KEEPS CROSS-DOMAIN RUNNING *
PASSLIM=7, *
PUTYPE=2, *
RETRIES=(1,4), 4 RETRIES, 1 SECOND BETWEEN *
DISCNT=(NO), (V) VTAM ONLY *
ISTATUS=ACTIVE, (V) VTAM ONLY *
VPACING=8, (V) VTAM ONLY *
XID=YES
* STATOPT='AS/400 T2.1' 08045313
***** 08045413
* DEFINITIONS FOR PS/2 WITH AS/400 PC SUPPORT * 08045513
* RAOTNNC1 INDEPENDENT LU 08045613
* 08046413
***** 08046513
RAOTPSC0 LU RESSCB=4, INDEPENDENT LU *
LOCADDR=0, *
MODETAB=MTGS3X, *
DLOGMOD=MODS361, *
ISTATUS=ACTIVE
* STATOPT='INDEPENDENT LU' 08047113
***** 08047208
* SNA SWITCHED LINE GROUP * 14560008
***** 14570008
RAOGSHS0 GROUP LNCTL=SDLC, *
DIAL=YES, *
NEWSYNC=NO, *
NRZI=YES, *
PAUSE=1, *
RETRIES=(7,4,5) 7 RETRY PER SECOND FOR 5 TIMES *
RAOL0025 LINE ADDRESS=(25,HALF), PHONE NUMBER 850-2401 *
NPACOLL=YES, NPA*
OWNER=RAB, (V) VTAM *
CLOCKNG=EXT, *
DUPLEX=HALF, *
RETRIES=(5,4,24), *
SPEED=2400, *
ANSWER=ON, (V) VTAM *
CALL=INOUT, (V) VTAM *
ISTATUS=ACTIVE (V) VTAM
* ATTACH=MODEM, # NOT SUPPORTED V4R3 14740008
* STATOPT=('DIAL LINE',NOMONIT) 14750008
RAOP13 PU PUTYPE=(1,2), *
XID=YES
* MAXLU=16, # NOT SUPPORTED V4R3 14770008
* STATOPT=('DIAL LINE',NOMONIT) 14780008

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*
RAOL0026 LINE ADDRESS=(26,HALF),  PHONE NUMBER  * 14790008
      NPACOLL=YES,  NPA*
      OWNER=RAK,  (V) VTAM  *
      CLOCKNG=EXT,  *
      DUPLEX=HALF,  *
      SPEED=2400,  *
      ANSWER=ON,  (V) VTAM  *
      CALL=INOUT,  (V) VTAM  *
      ISTATUS=INACTIVE (V) VTAM
*      ATTACH=MODEM,  # NOT SUPPORTED V4R3 14890008
*      STATOPT=('DIAL LINE',NOMONIT) 14900008
RAOP14  PU PUTYPE=(1,2)
*      MAXLU=16,  # NOT SUPPORTED V4R3 14920008
*      STATOPT=('DIAL LINE',NOMONIT) 14930008
* 14950008
***** 14960008
*      GROUP MACRO SPECIFICATIONS FOR SDLC LOCAL/LOCAL LINKS * 14970008
***** 14980008
RAOGXSEC GROUP MODE=SEC,LNCTL=SDLC,ACTIVTO=120
* 15000008
RAOGXPRI GROUP MODE=PRI,LNCTL=SDLC,REPLYTO=1
* 15020008
RAOGXLLL GROUP LNCTL=SDLC,REPLYTO=1
* 15040008
***** 15050008
*      LINE MACRO SPECIFICATION FOR LINE 15  SNI LINK TO USIBMTA * 15060008
***** 15070008
RAOL0015 LINE ADDRESS=(15,FULL),  LINE ADDRESS  *
      CLOCKNG=(EXT),  REQUIRED FOR DIRECT  *
      DUPLEX=(FULL),  MODEM STRAPPING IS FULL  *
      MONLINK=YES,  MONITOR LINK FOR ACTPU  *
      LPDATS=LPDA1,  *
      NRZI=YES,  *
      OWNER=RAB,  *
      PAUSE=0.1,  *
      SDLCST=(SDL24PRI,SDL24SEC),  *
      SERVLIM=254,  *
      SPEED=(9600,9600),  NPA USE ONLY  *
      SRT=(,64),  *
      ISTATUS=ACTIVE  INITIAL STATUS
*      ATTACH=MODEM,  # NOT SUPPORTED V4R3 15210008
**      STATOPT=('INN BLDG 051 SA7') 15220008
***** 15230008
*      PU MACRO SPECIFICATION FOR THE ADJACENT 3725  USIBMTA * 15240008
***** 15250008
RAOP015  PU MAXOUT=7,  MAX PIU'S SENT BEFORE RESP REQ  *
      PUTYPE=4,  PHYSICAL UNIT TYPE LOCAL 3725  *
      NETID=USIBMTA,  NET OF SOLUTION PAC  *
      ISTATUS=ACTIVE,  INITIAL STATUS  *
      TGN=8,  TRANSMISSION GROUP 8  *
      ANS=CONTINUE  DON'T BREAK THE X-DOMAIN SESSIONS
*      STATOPT=('INN BLDG 051') 15320008
***** 15330008
*      LINE MACRO SPECIFICATION FOR LINE 16  SNI LINK TO SCRA@NET * 15340008
*      NO LOGER REQUIRED 25/10/88 HILARY LEE 15341008
***** 15350008
*RAOL0016 LINE ADDRESS=(16,HALF),  LINE ADDRESS 15360008
*      CLOCKNG=EXT,  REQUIRED FOR DIRECT 15370008

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*          DUPLEX=FULL,          MODEM STRAPPING IS FULL          15380008
*          MONLINK=YES,          MONITOR LINK FOR ACTPU          15390008
*          NRZI=YES,              15400008
*          LPDATS=LPDA1,          15410008
*          PAUSE=0.1,             15420008
*          SDLCST=(SDL24PRI,SDL24SEC), 15430008
*          SERVLIM=254,           15440008
*          SPEED=9600,            NPA USE ONLY                    15450008
*          SRT=(,64),             15460008
*          ISTATUS=ACTIVE         INITIAL STATUS                  15470008
**         ATTACH=MODEM,          # NOT SUPPORTED V4R3           15480008
**         STATOPT=('INN POK F NETWORK USIBMSC')                 15490008
***** 15500008
*          PU MACRO SPECIFICATION FOR THE ADJACENT 3725 SNI SCRA@NET * 15510008
*          NO LOGER REQUIRED 25/10/88 HILARY LEE                   15511008
***** 15520008
*RAOP16  PU  MAXOUT=7,          MAX PIU'S SENT BEFORE RESP REQ  15530008
*          PUTYPE=4,            PHYSICAL UNIT TYPE LOCAL 3725    15540008
*          NETID=SCRA@NET,       NULLNET TO POUGHKEEPIE          15550008
*          ISTATUS=ACTIVE,       INITIAL STATUS                  15560008
*          TGN=8,                TRANSMISSION GROUP 8            15570008
*          ANS=CONTINUE          DON'T BREAK THE X-DOMAIN SESSIONS 15580008
**         STATOPT=('INN POK SA5')                                15590008
***** 15600008
*          LINE MACRO SPECIFICATION FOR LINE 18  INN LINK 9370 NETD * 15610008
***** 15620008
RAOH1RAE LINE ADDRESS=(18,HALF), LINE ADDRESS                    *
          CLOCKNG=EXT,          REQUIRED FOR DIRECT                *
          DUPLEX=FULL,          MODEM STRAPPING IS FULL          *
          IPL=YES,              ALLOW LOADING OVER THIS LINK      *
          MONLINK=YES,          MONITOR LINK FOR ACTPU            *
          NRZI=YES,              *                                *
          PAUSE=0.1,             *                                *
          RETRIES=(7,3,5),       *                                *
          SDLCST=(SDL24PRI,SDL24SEC), *                          *
          SERVLIM=254,           *                                *
          SPEED=9600,            NPA USE ONLY                    *
          SRT=(,64),             *                                *
          ISTATUS=ACTIVE         INITIAL STATUS                  *
*          ATTACH=MODEM,          # NOT SUPPORTED V4R3           15760008
*          STATOPT=('L24014 9370 SA 14')                         15770008
***** 15780008
*          PU MACRO SPECIFICATION FOR THE ADJACENT 9370 M90 SA 14 NETD * 15790008
***** 15800008
RAOP17  PU  MAXOUT=7,          MAX PIU'S SENT BEFORE RESP REQ  *
          PUTYPE=4,            PHYSICAL UNIT TYPE ICA 4361      *
          ISTATUS=ACTIVE,       INITIAL STATUS                  *
          TGN=1,                ICA  TRANSMISSION GROUP 1        *
          NETID=NETD,           SNI CONNECTION TO NETD          *
          ANS=CONTINUE          DON'T BREAK THE X-DOMAIN SESSIONS
*          STATOPT=('9370 M90')                                15870008
***** 15880008
*          LINE MACRO SPECIFICATION  SDLC LINK 036              * 15890008
***** 15900008
RAOL0036 LINE ADDRESS=(36,FULL), TRANSMIT AND RECEIVE ADDRESSES *
          CLOCKNG=EXT,          *                                *
          ISTATUS=ACTIVE,       *                                *
          DUPLEX=(FULL),        REQUEST TO SEND ALWAYS UP        *
          ETRATIO=30,           DEFAULT                            *

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LPDAT5=NO,
OWNER=RAB,
MAXPU=9, ALLOW NO MORE THAN 9 PUS ON LINE
SERVLIM=10,
SRT=(,64),
SPEED=19200 LINE SPEED IS 19200BPS
ATTACH=MODEM, # NOT SUPPORTED V4R3
STATOPT=('SDLC 327X LINE')
*****
SERVICE MACRO SPECIFICATION FOR SDLC (LINE 036)
*****
SERVICE ORDER=(RAOP18),MAXLIST=9
*****
PU/LU SPECIFICATIONS FOR PU3274
*****
RAOP18 PU ADDR=C6, CLUSTER ADDRESS = C6
ANS=CONTINUE, DON'T BREAK THE X-DOMAIN SESSIONS
MAXDATA=265, MAXIMUM AMOUNT OF DATA
MAXOUT=7, MAX SDLC FRAMES BEFORE RESPONSE
PACING=0, PACING SET BY BIND IMAGE
PASSLIM=8,
PUDR=YES,
PUTYPE=2,
RETRIES=(,4,5), 7 RETRY PER SECOND FOR 5 TIMES
DISCNT=(NO), (V) VTAM
ISTATUS=ACTIVE, (V) VTAM
SSCPFM=USSSCS, (V) VTAM
VPACING=0 (V) VTAM
MAXLU=64, # NOT SUPPORTED V4R3
STATOPT=('3274',NOACTY)
RAOT1801 LU LOCADDR=2, FIRST LU MUST BE LOCADDR=2
MODETAB=AMODETAB,DLOGMOD=M2SDLCNQ,
USSTAB=US327X, (V) VTAM
ISTATUS=ACTIVE (V) VTAM
RAOT1802 LU LOCADDR=3,
MODETAB=MTJS328X,DLOGMOD=SCS3262,
ISTATUS=ACTIVE (V) VTAM
STATOPT=('RMT99',NOACTY)
RAOT1803 LU LOCADDR=4,
MODETAB=AMODETAB,DLOGMOD=M3SDLCQ,
USSTAB=US327X, (V) VTAM
ISTATUS=ACTIVE (V) VTAM
RAOT1804 LU LOCADDR=5,
MODETAB=AMODETAB,DLOGMOD=M3SDLCQ,
USSTAB=US327X, (V) VTAM
ISTATUS=ACTIVE (V) VTAM
RAOT1805 LU LOCADDR=6,
MODETAB=AMODETAB,DLOGMOD=M3SDLCQ,
USSTAB=US327X, (V) VTAM
ISTATUS=ACTIVE (V) VTAM
RAOT1806 LU LOCADDR=7,
MODETAB=AMODETAB,DLOGMOD=M2SDLCNQ,
USSTAB=US327X, (V) VTAM
ISTATUS=ACTIVE (V) VTAM
RAOT1807 LU LOCADDR=8,
MODETAB=AMODETAB,DLOGMOD=M2SDLCNQ,
USSTAB=USMSHF, (V) VTAM
ISTATUS=ACTIVE (V) VTAM
RAOT1808 LU LOCADDR=9,
MODETAB=AMODETAB,DLOGMOD=M3SDLCQ,
USSTAB=US327X, (V) VTAM
ISTATUS=ACTIVE (V) VTAM

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                ISTATUS=ACTIVE      (V) VTAM
RAOT1817 LU LOCADDR=24,
                MODETAB=AMODETAB,DLOGMOD=M2SDLCNQ,
                USSTAB=US327X,      (V) VTAM
                ISTATUS=ACTIVE      (V) VTAM
***** 17180008
*      LINE MACRO SPECIFICATION FOR LINE 32  INN LINK TO SA30 SNI * 17190008
***** 17200008
RAOH1MKU LINE ADDRESS=(32,FULL),  LINE ADDRESS
                CLOCKNG=EXT,        REQUIRED FOR DIRECT
                DUPLEX=FULL,        MODEM STRAPPING IS FULL
                IPL=YES,            ALLOW LOADING OVER THIS LINK
                MONLINK=YES,        MONITOR LINK FOR ACTPU
                NRZI=YES,
                PAUSE=0.1,
                SDLCST=(SDL24PRI,SDL24SEC),
                SERVLIM=254,
                SPEED=56000,        NPA USE ONLY,ICC MAXIMUM
                SRT=(,64),
                ISTATUS=ACTIVE      INITIAL STATUS
*      ATTACH=MODEM,              # NOT SUPPORTED V4R3      17330008
*      STATOPT=('SNI LINK TO SA30') 17340008
***** 17350008
*      PU MACRO SPECIFICATION FOR THE ADJACENT 3725 SA30 * 17360008
*      MKNETC NULL-NETWORK TO USIBMMK * 17370008
***** 17380008
RAOP19  PU MAXOUT=7,              MAX PIU'S SENT BEFORE RESP REQ *
                PUTYPE=4,          PHYSICAL UNIT TYPE LOCAL 3725 *
                NETID=MKNETC,      NETWORK FOR SNI BACK TO BACK *
                ISTATUS=ACTIVE,    INITIAL STATUS *
                TGN=8,              TRANSMISSION GROUP 8 *
                ANS=CONTINUE       DON'T BREAK THE X-DOMAIN SESSIONS
*      STATOPT=('SNI / SA30',NOMONIT) 17450008
***** 17460008
*      LINE MACRO SPECIFICATION FOR LINE 40  INN LINK TO 96 ON SA26 * 17470008
***** 17480008
RAOH2RAQ LINE ADDRESS=(40,FULL),  LINE ADDRESS
                CLOCKNG=EXT,        REQUIRED FOR DIRECT
                DUPLEX=FULL,        MODEM STRAPPING IS FULL
                IPL=YES,            ALLOW LOADING OVER THIS LINK
                MONLINK=YES,        MONITOR LINK FOR ACTPU
                NRZI=YES,
                PAUSE=0.1,
                SDLCST=(SDL24PRI,SDL24SEC),
                SERVLIM=254,
                SPEED=56000,        NPA USE ONLY,ICC MAXIMUM
                SRT=(,64),
                ISTATUS=ACTIVE      INITIAL STATUS
*      ATTACH=MODEM,              # NOT SUPPORTED V4R3      17610008
*      STATOPT=('INN SA26/L96',NOMONIT) 17620008
***** 17630008
*      PU MACRO SPECIFICATION FOR THE ADJACENT 3725 SA26 * 17640008
***** 17650008
RAOP1A  PU MAXOUT=7,              MAX PIU'S SENT BEFORE RESP REQ *
                PUTYPE=4,          PHYSICAL UNIT TYPE LOCAL 3725 *
                ISTATUS=ACTIVE,    INITIAL STATUS *
                TGN=8,              TRANSMISSION GROUP 8 *
                ANS=CONTINUE       DON'T BREAK THE X-DOMAIN SESSIONS
                STATOPT=('SA26/L96',NOMONIT) 17710008

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***** 17711008
*      LINE MACRO SPECIFICATION FOR LINE 44  INN LINK TO 80 ON SA26 * 17712008
***** 17713008
RAOH1RAQ LINE ADDRESS=(44,FULL),  LINE ADDRESS *
          CLOCKNG=DIRECT,  SA 24 PROVIDE THE CLOCK *
          DUPLEX=FULL,  MODEM STRAPPING IS FULL *
          IPL=YES,  ALLOW LOADING OVER THIS LINK *
          MONLINK=YES,  MONITOR LINK FOR ACTPU *
          NRZI=YES, *
          PAUSE=0.1, *
          SDLCST=(SDL24PRI,SDL24SEC), *
          SERVLIM=254, *
          SPEED=56000,  NPA USE ONLY,ICC MAXIMUM *
          SRT=(,64), *
          ISTATUS=ACTIVE  INITIAL STATUS
*      STATOPT=('INN SA26/L80',NOMONIT) 17719808
***** 17719908
*      PU MACRO SPECIFICATION FOR THE ADJACENT 3725 SA26 * 17720008
***** 17720108
RAOP1C  PU MAXOUT=7,  MAX PIU'S SENT BEFORE RESP REQ *
          PUTYPE=4,  PHYSICAL UNIT TYPE LOCAL 3725 *
          ISTATUS=ACTIVE,  INITIAL STATUS *
          TGN=8,  TRANSMISSION GROUP 8 *
          ANS=CONTINUE  DON'T BREAK THE X-DOMAIN SESSIONS
*      STATOPT=('SA26/L80',NOMONIT) 17720708
** 17990008
***** 03211000
*      PHYSICAL GROUP FOR NTRI TIC 1 * 37352800
***** 03211000
EG24P00 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
* 37351600
EL24080 LINE ADDRESS=(80,FULL),PORTADD=0,LOCADD=400001240000, *
          RCVBUFC=4095, *
          MAXTSL=1108, *
          UACB=(X$P1AX,X$P1AR)
* GENERATED BY ECL
J000001S SERVICE
* 37352100
EP24080 PU ADDR=01
* 37352400
EU24080 LU ISTATUS=INACTIVE,
          LOCADDR=0
***** 37352700
*      PHYSICAL GROUP FOR NTRI TIC 2 * 37352800

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***** 37352900
EG24P01 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
*        STATOPT='NTRI TIC2'
*
***** 37353100
***** 37353200
EL24081 LINE ADDRESS=(81,FULL),PORTADD=1,LOCADD=400001240001,
        RCVBUFC=4095,
        MAXTSL=1108,
        UACB=(X$P2AX,X$P2AR)
*
* GENERATED BY ECL
J0000002S SERVICE
*
***** 37353700
EP24081 PU ADDR=01
*
***** 37354000
EU24081 LU ISTATUS=INACTIVE,
        LOCADDR=0
***** 37354200
* LOGICAL GROUP FOR NTRI TIC 1
***** 37354300
***** 37354400
***** TO CHANGE MAXLU ALSO CONSIDER LUDRPOOL AND MAXVLINE ***** 37354500
***** 37354600
EG24L00 GROUP ECLTYPE=LOGICAL,
        AUTOGEN=13,
        CALL=INOUT,
        OWNER=RAB,
        PHYPORT=0,
        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,
        RETRIES=(6,0,0,6)
*
* GENERATED BY ECL
J00000001 LINE UACB=X$L1A
* GENERATED BY ECL

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J0000002 PU
* GENERATED BY ECL
J0000003 LINE UACB=X$L2A
* GENERATED BY ECL
J0000004 PU
* GENERATED BY ECL
J0000005 LINE UACB=X$L3A
* GENERATED BY ECL
J0000006 PU
* GENERATED BY ECL
J0000007 LINE UACB=X$L4A
* GENERATED BY ECL
J0000008 PU
* GENERATED BY ECL
J0000009 LINE UACB=X$L5A
* GENERATED BY ECL
J000000A PU
* GENERATED BY ECL
J000000B LINE UACB=X$L6A
* GENERATED BY ECL
J000000C PU
* GENERATED BY ECL
J000000D LINE UACB=X$L7A
* GENERATED BY ECL
J000000E PU
* GENERATED BY ECL
J000000F LINE UACB=X$L8A
* GENERATED BY ECL
J0000010 PU
* GENERATED BY ECL
J0000011 LINE UACB=X$L9A
* GENERATED BY ECL
J0000012 PU
* GENERATED BY ECL
J0000013 LINE UACB=X$L10A
* GENERATED BY ECL
J0000014 PU
* GENERATED BY ECL
J0000015 LINE UACB=X$L11A
* GENERATED BY ECL
J0000016 PU
* GENERATED BY ECL
J0000017 LINE UACB=X$L12A
* GENERATED BY ECL
J0000018 PU
* GENERATED BY ECL
J0000019 LINE UACB=X$L13A
* GENERATED BY ECL
J000001A PU
***** 37355300
*      LOGICAL GROUP FOR NTRI TIC 2      * 37355400
***** 37355500
EG24L01 GROUP ECLTYPE=LOGICAL,
          AUTOGEN=12,
          CALL=INOUT,
          PHYPORT=1,
          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,
 RETRIES=(6,0,0,6)

*
 *
 *
 *
 *
 *
 *
 *
 *
 *
 *

* GENERATED BY ECL
 J000001B LINE UACB=X\$L14A
 * GENERATED BY ECL
 J000001C PU
 * GENERATED BY ECL
 J000001D LINE UACB=X\$L15A
 * GENERATED BY ECL
 J000001E PU
 * GENERATED BY ECL
 J000001F LINE UACB=X\$L16A
 * GENERATED BY ECL
 J0000020 PU
 * GENERATED BY ECL
 J0000021 LINE UACB=X\$L17A
 * GENERATED BY ECL
 J0000022 PU
 * GENERATED BY ECL
 J0000023 LINE UACB=X\$L18A
 * GENERATED BY ECL
 J0000024 PU
 * GENERATED BY ECL
 J0000025 LINE UACB=X\$L19A
 * GENERATED BY ECL
 J0000026 PU
 * GENERATED BY ECL
 J0000027 LINE UACB=X\$L20A
 * GENERATED BY ECL
 J0000028 PU
 * GENERATED BY ECL
 J0000029 LINE UACB=X\$L21A
 * GENERATED BY ECL
 J000002A PU
 * GENERATED BY ECL
 J000002B LINE UACB=X\$L22A
 * GENERATED BY ECL
 J000002C PU
 * GENERATED BY ECL
 J000002D LINE UACB=X\$L23A
 * GENERATED BY ECL
 J000002E PU
 * GENERATED BY ECL
 J000002F LINE UACB=X\$L24A
 * GENERATED BY ECL
 J0000030 PU
 * GENERATED BY ECL
 J0000031 LINE UACB=X\$L25A

```

* GENERATED BY ECL
J0000032 PU
***** 18010008
*      GROUP MACRO SPECIFICATIONS FOR CHANNEL ADAPTERS      * 18011008
***** 18012008
RAOGCA  GROUP LNCTL=CA,          CHANNEL ADAPTERS      *
          ISTATUS=INACTIVE      STOP VTAM ACT THE CHANNEL LINK
***** 18015008
*      CHANNEL 0  SUBARE 11 (VM C9F) (MVS 096)      18015108
***** 18015208
RAOH03  LINE ADDRESS=0,
          CA=TYPE5,              NO TWO PROCESSOR SWITCH      *
          CASDL=120,             INTERVAL BEFORE CHANNEL SLOW DOWN *
          DELAY=0.2,             CHANNEL ATTENTION DELAY      *
          DYNADMP=NONE,          NO EP SUB CHANNEL TO DUMP DATA *
          NCPCA=ACTIVE,          NATIVE SUB CHANEL ACTIVE      *
          TIMEOUT=120            INTERVAL BEFOR CHANNEL DISCONNECT
RAOPC9F  PU PUTYPE=5,            HOST      *
          TGN=1                  MUST BE 1 FOR HOST
*      STATOPT='CHANNEL 0'      18016308
***** 18016408
*      CHANNEL 1  SYS3          (VM C9E)      18016508
***** 18016608
RAOH13  LINE ADDRESS=1,
          CA=TYPE5,              NO TWO PROCESSOR SWITCH      *
          CASDL=120,             INTERVAL BEFORE CHANNEL SLOW DOWN *
          DELAY=0.2,             CHANNEL ATTENTION DELAY      *
          DYNADMP=NONE,          NO EP SUB CHANNEL TO DUMP DATA *
          NCPCA=ACTIVE,          NATIVE SUB CHANEL ACTIVE      *
          TIMEOUT=120            INTERVAL BEFOR CHANNEL DISCONNECT
RAOPC9E  PU PUTYPE=5,            HOST      *
          TGN=1                  MUST BE 1 FOR HOST
*      STATOPT='CHANNEL 1'      18017708
***** 18017808
*      CHANNEL 2  SYSTEM6 20    (VM C9D) (MVS C9D)      18017908
***** 18018008
RAOH26  LINE ADDRESS=2,
          CA=TYPE5,              NO TWO PROCESSOR SWITCH      *
          CASDL=120,             INTERVAL BEFORE CHANNEL SLOW DOWN *
          DELAY=0.2,             CHANNEL ATTENTION DELAY      *
          DYNADMP=NONE,          NO EP SUB CHANNEL TO DUMP DATA *
          NCPCA=ACTIVE,          NATIVE SUB CHANEL ACTIVE      *
          TIMEOUT=120            INTERVAL BEFOR CHANNEL DISCONNECT
RAOPC9D  PU PUTYPE=5,            HOST      *
          TGN=1                  MUST BE 1 FOR HOST
*      STATOPT='CHANNEL 2'      18019108
***** 18019208
*      CHANNEL 3  SYSTEM 6      (VM 09C)      18019308
***** 18019408
RAOH36  LINE ADDRESS=3,
          CA=TYPE5,              NO TWO PROCESSOR SWITCH      *
          CASDL=120,             INTERVAL BEFORE CHANNEL SLOW DOWN *
          DELAY=0.2,             CHANNEL ATTENTION DELAY      *
          DYNADMP=NONE,          NO EP SUB CHANNEL TO DUMP DATA *
          NCPCA=ACTIVE,          NATIVE SUB CHANEL ACTIVE      *
          TIMEOUT=120            INTERVAL BEFOR CHANNEL DISCONNECT
RAOPC9C  PU PUTYPE=5,            HOST      *
          TGN=1                  MUST BE 1 FOR HOST
*      STATOPT='CHANNEL 3'      18020508

```

```

***** 18020608
*      CHANNEL 4 SYSTEM 3      (VM 09A)      18020708
***** 18020808
RAOH43  LINE ADDRESS=4,      *
        CA=TYPE5,            NO TWO PROCESSOR SWITCH      *
        CASDL=120,           INTERVAL BEFORE CHANNEL SLOW DOWN *
        DELAY=0.2,           CHANNEL ATTENTION DELAY      *
        DYNADMP=NONE,        NO EP SUB CHANEL TO DUMP DATA *
        NCPCA=ACTIVE,        NATIVE SUB CHANEL ACTIVE      *
        TIMEOUT=120          INTERVAL BEFOR CHANNEL DISCONNECT
RAOPC9A PU PUTYPE=5,          HOST      *
        TGN=1                MUST BE 1 FOR HOST
*      STATOPT='CHANNEL 4'      18021808
***** 18021908
*      CHANNEL 3 SYSTEM 6      (VM 09B)      18022008
***** 18022108
RAOH56  LINE ADDRESS=5,      *
        CA=TYPE5,            NO TWO PROCESSOR SWITCH      *
        CASDL=120,           INTERVAL BEFORE CHANNEL SLOW DOWN *
        DELAY=0.2,           CHANNEL ATTENTION DELAY      *
        DYNADMP=NONE,        NO EP SUB CHANEL TO DUMP DATA *
        NCPCA=ACTIVE,        NATIVE SUB CHANEL ACTIVE      *
        TIMEOUT=120          INTERVAL BEFOR CHANNEL DISCONNECT
RAOPC9B PU PUTYPE=5,          HOST      *
        TGN=1                MUST BE 1 FOR HOST
*      STATOPT='CHANNEL 5'      18023108
***** 18023208
*      NON NATIVE NETWORK FOR SNI TO MKNETC - BACK TO BACK      * 18024008
*      (MKNETC IS THE NULL-NETWORK TO USIBMMK)      * 18030008
***** 18040008
        NETWORK NETID=MKNETC,      **
        ACTPU=NO,              ****
        MAXSUBA=31,            ****
        NUMHSAS=1,             **
        SUBAREA=24,            **
        NETLIM=128,            **
        SESSLIM=32,            **
        COSTAB=ISTSDCOS
***** 18130008
*      PREDIFINED CDRMS OF USIBMRA AND RESERVED ADRESSES      * 18140008
***** 18150008
        GWNAU NAME=RAB,NETID=USIBMRA,NUMSESS=16,ELEMENT=1
        GWNAU NUMADDR=112
***** 18180008
*      PATHES IN NETWORK MKNETC      * 18190008
***** 18200008
*      PATH      18210008
*      18220008
        PATH DESTSA=30,      *
        ER0=(30,8,5000,5000,5000,20000),      *
        VR0=0
*      18260008
*      18270008
***** 18280008
***** 18290008
*      NON NATIVE NETWORK FOR SNI TO USIBMTA      * 18300008
*      USIBMTA IS THE NETWORK OF BLDG 051 SOLUTION PACK      * 18310008
***** 18320008
        NETWORK NETID=USIBMTA,      *

```



```

          ACTPU=NO,
          MAXSUBA=31,
          NUMHSAS=3,
          SUBAREA=24,
          NETLIM=128,
          SESSLIM=32,
          COSTAB=ISTSDCOS
***** 18410008
*   PREDIFINED CDRMS OF USIBMRA AND RESERVED ADRESSES   * 18420008
***** 18430008
          GWNAU NAME=RAB,NETID=USIBMRA,NUMSESS=16,ELEMENT=1
          GWNAU NUMADDR=200
***** 18460008
*   PATHES IN NETWORK USIBMTA   * 18470008
***** 18480008
*PATH   18490008
*   18500008
          PATH DESTSA=7,
          ER0=(7,8),
          VR0=0
          PATH DESTSA=6,
          ER0=(7,8),
          VR0=0
*   18540008
*   18550008
***** 18560008
***** 18570008
*   NON NATIVE NETWORK FOR SNI TO NETD 9370   * 18580008
***** 18590008
          NETWORK NETID=NETD,
          ACTPU=NO,
          NUMHSAS=5,
          SUBAREA=27,
          COSTAB=ISTSDCOS
***** 18650008
*   PREDIFINED CDRMS OF USIBMRA AND RESERVED ADRESSES   * 18660008
***** 18670008
          GWNAU NAME=RAB,NETID=USIBMRA,NUMSESS=15,ELEMENT=1
          GWNAU NUMADDR=50
***** 18700008
*   PATHES IN NETWORK NETD   * 18710008
***** 18720008
*PATH   18730008
*   18740008
          PATH DESTSA=14,
          ER0=(14,1),
          VR0=0
*   18780008
          PATH DESTSA=15,
          ER0=(14,1),
          VR0=0
*   18820008
          PATH DESTSA=16,
          ER0=(14,1),
          VR0=0
*   18860008
*   18870008
***** 18880008
          GENEND INIT=ECLINIT,

```

TMRTICK=ECLTICK,
UGLOBAL=ECLUGBL

13.0 Appendix E: Listing of VTAM Switched Major Node for Scenario 1

```

*****
*
*          VTAM SWITCHED MAJOR NODE FOR NTRI WITH APPCLU
*
*****
          VBUILD MAXGRP=5,          REQUIRED      * X00010480
          MAXNO=12,                REQUIRED      * X00010490
          TYPE=SWNET                REQUIRED      00010500
**                                     00010530
**
**
**
RAOP13   PU   ADDR=01,              * X00010540
          CPNAME=RALYAS4A,          * X
          DISCNT=NO,                * X00010570
          MAXOUT=1,                 * X00010580
          MAXPATH=0,                * X00010590
          VPACING=0,                * X00010610
          PUTYPE=2,                 * X00010620
          SSCPFM=USSSCS             00010630
**
RAOAS4A  LU   LOCADDR=0,            FOR THE AS/400A : ILU  * X00010650
          RESSCB=4,                 * X
          MODETAB=MTGS3X,           * X
          DLOGMOD=MODS361
**                                     00010640
**
RAOT25D1 LU   LOCADDR=1,            FOR THE 3270 EMULATION * X00010650
          MODETAB=MTGS3X,           * X
          DLOGMOD=EM3278,          * X
          USSTAB=US327X
**
**
RAOT25D2 LU   LOCADDR=2,            FOR THE 3270 EMULATION * X00010650
          MODETAB=MTGS3X,           * X
          DLOGMOD=EM3278,          * X
          USSTAB=US327X
**
**
RAOT25D3 LU   LOCADDR=3,            FOR THE 3270 EMULATION * X00010650
          MODETAB=MTGS3X,           * X
          DLOGMOD=EM3278,          * X
          USSTAB=US327X
**
**
RAOT25D4 LU   LOCADDR=4,            FOR THE 3270 EMULATION * X00010650
          MODETAB=MTGS3X,           * X
          DLOGMOD=EM3278,          * X
          USSTAB=US327X
**
**

```

RA0T25D5 LU	LOCADDR=5, MODETAB=MTGS3X, DLOGMOD=MODS361, LOGAPPL=CICS11	APPC SESSIONS WITH CICS	* X00010650 * X * X
**			
**			
RA0T25D6 LU	LOCADDR=6, MODETAB=MTGS3X, DLOGMOD=MODS361, LOGAPPL=CICS11	APPC SESSIONS WITH CICS	* X00010650 * X * X
**			
**			
RA0T25D7 LU	LOCADDR=7, MODETAB=MTGS3X, DLOGMOD=MODS361, LOGAPPL=CICS11	APPC SESSIONS WITH CICS	* X00010650 * X * X
**			
**			
RA0T25D8 LU	LOCADDR=8, MODETAB=MTGS3X, DLOGMOD=SNUF36	SNUF LU0	* X00010650 * X
**			
**			
RA0T25D9 LU	LOCADDR=9, MODETAB=MTGS3X, DLOGMOD=SNUF36	SNUF LU0	* X00010650 * X
**			
**			
RA0T25DA LU	LOCADDR=10, MODETAB=MTGS3X, DLOGMOD=SNUF36	SNUF LU0	* X00010650 * X
**			
**			
RA0T25DB LU	LOCADDR=11, MODETAB=MTGS3X, DLOGMOD=RJES36	RJE	* X00010650 * X
**			
**			
RA0T25DC LU	LOCADDR=12, MODETAB=MTGS3X, DLOGMOD=RJES36	RJE	* X00010650 * X
**			
**			
RA0T25DD LU	LOCADDR=13, MODETAB=MTGS3X, DLOGMOD=RJES36	RJE	* X00010650 * X
**			
**			

RA0T25DE LU	LOCADDR=14, ISTATUS=ACTIVE	DHCF	* X00010650
**			
**			
RA0T25DF LU	LOCADDR=15, ISTATUS=ACTIVE	DHCF	* X00010650
**			
**			
RA0T25DG LU	LOCADDR=16, ISTATUS=ACTIVE	DHCF	* X00010650
**			
**			
RA0T25DH LU	LOCADDR=17, ISTATUS=ACTIVE	DHCF	* X
**			
**			
RA0T25DI LU	LOCADDR=18, ISTATUS=ACTIVE	DHCF	* X00010650
**			
**			
RA0T25DJ LU	LOCADDR=19, ISTATUS=ACTIVE, MODETAB=MTGS3X	DSNX	* X00010650 * X
**			
**			
RA0T25DK LU	LOCADDR=20, ISTATUS=ACTIVE, MODETAB=MTGS3X	DSNX	* X00010650 * X
**			

14.0 Appendix F: Listing of VTAM Switched Major Node for Scenario 2/4

```

*****
*
*   VTAM SWITCHED MAJOR NODE FOR PS/2 RUNNING AS/400 PC SUPPORT
*
*****
SWRAOTR VBUILD TYPE=SWNET,          REQUIRED      * X
                                MAXNO=12,        REQUIRED      * X
                                MAXGRP=5
**
**
**
RAOTRPU1 PU   ADDR=13,              COULD BE ANYTHING (NOT USED) * X
              CPNAME=RAOTRPS0,      PS/2 WITH AS/400 PC SUPPORT * X
              DISCNT=NO,             * X
              ISTATUS=ACTIVE,        X
              MAXDATA=265,           X
              SAPADDR=4,             X
              MAXOUT=1,              * X
              MAXPATH=1,             * X
              PUTYPE=2,              * X
              SSCPFM=USSSCS,         * X
              MODETAB=MTGS3X,        * X
              DLOGMOD=QPCSUPP,       * X
              VPACING=0
**
RAOTR101 PATH GRPNM=EG24L00,          * X
              DIALNO=0004400000314005, PC/AT TR ADDRESS * X
              GID=1,                 * X
              PID=1,                 X
              USE=YES
**
**
RAOTRPS0 LU   LOCADDR=0,              FOR THE PC RUNNING PC SUPPORT X
              RESSCB=4
**
**
**
RAOTRPU2 PU   ADDR=13,              COULD BE ANYTHING (NOT USED) * X
              CPNAME=RALYAS4B,      AS/400 B          X
              DISCNT=NO,             * X
              ISTATUS=ACTIVE,        X
              MAXOUT=1,              * X
              MAXPATH=4,             * X
              PUTYPE=2,              * X
              SAPADDR=4,             * X
              SSCPFM=USSSCS,         * X
              MODETAB=MTGS3X,        * X
              VPACING=0
**

```


RA0TR201	PATH	GRPNM=EG24L00,		* X
		DIALNO=0004400010020002,	AS400/B TR ADDRESS	* X
		GID=1,		* X
		PID=1,		X
		USE=YES		
**				
AS4B	LU	LOCADDR=0,	FOR THE AS/400 B	* X
		RESSCB=4,		X
		DLOGMOD=QPCSUPP		
**				
**				
B3270PU3	PU	ADDR=13,	COULD BE ANYTHING (NOT USED)	* X
		IDBLK=017,	PC 3274 EMULATOR	* X
		IDNUM=B0003,	PC 3274 EMULATOR	* X
		DISCNT=NO,		* X
		IRETRY=NO,	NOT USED	X
		ISTATUS=ACTIVE,		X
		MAXDATA=265,		X
		MAXOUT=7,	NOT USED FOR 9370/LAN	* X
		MAXPATH=4,		* X
		PACING=0,		* X
		PUTYPE=2,		* X
		SAPADDR=4,		* X
		SSCPFM=USSSCS,		* X
		USSTAB=USSSNA,		* X
		VPACING=0		
**				
B3270301	PATH	GRPNM=EG24L00,		* X
		DIALNO=0004400000314005,		* X
		GID=1,		* X
		PID=1,		X
		USE=YES		
**				
B3270L32	LU	LOCADDR=2	FOR THE PC EMULATOR	
B3270L33	LU	LOCADDR=3	FOR THE PC EMULATOR	
B3270L34	LU	LOCADDR=4	FOR THE PC EMULATOR	
B3270L35	LU	LOCADDR=5	FOR THE PC EMULATOR	
**				
**				
**				
B3270PU4	PU	ADDR=13,	COULD BE ANYTHING (NOT USED)	* X
		IDBLK=017,	PC 3274 EMULATOR	* X
		IDNUM=B0004,	PC 3274 EMULATOR	* X
		DISCNT=NO,		* X
		IRETRY=NO,	NOT USED	X
		ISTATUS=ACTIVE,		X
		MAXDATA=265,		X
		MAXOUT=7,	NOT USED FOR 9370/LAN	* X
		MAXPATH=4,		* X
		PACING=0,		* X
		PUTYPE=2,		* X
		SAPADDR=4,		* X
		SSCPFM=USSSCS,		* X
		USSTAB=USSSNA,		* X
		VPACING=0		

```

**
B3270401 PATH GRPNM=EG24L00,          * X
                                DIALNO=0004400000314005,  * X
                                GID=1,                   * X
                                PID=1,                    X
                                USE=YES
**
B3270L42 LU   LOCADDR=2                FOR THE PC EMULATOR
B3270L43 LU   LOCADDR=3                FOR THE PC EMULATOR
B3270L44 LU   LOCADDR=4                FOR THE PC EMULATOR
B3270L45 LU   LOCADDR=5                FOR THE PC EMULATOR
**
**

```


15.0 Appendix G: System/38 CL Program for Scenario 1

```

PGM
/*****
/* This program is used to create the line, control unit and
/* device descriptions for the SNA line L24020 ADDRESS C3
/* RALEIGH INTERNATIONAL SUPPORT CENTER.
/* This line is used for RJE, 3270 emulation, HCF/DHCF,
/* APPC WITH CICS
/*
*****/
/* INDEPENDENT LU      RAONN      RAOTNNC0  000061
/*                    RAONN1      RAOTNNC1  000061
/*                    RAONN2      RAOTNNC2  000061
/*                    RAONN3      RAOTNNC3  000061
/*
/* 3270 Emulation      E24020C1      RAOT0901  020061
/*                    E24020C2      RAOT0902  030061
/*                    E24020C3      RAOT0903  040061
/*                    E24020C4      RAOT0904  050061
/*
/* APPC WITH CICS11    A24020C5      RAOT0905  060061
/*                    A24020C6      RAOT0906  070061
/*                    A24020C7      RAOT0907  080061
/*
/* LU0 WITH CICS11     C24020C8      RAOT0908  060061
/*
/* RJE                  Q61DEVLU01      RAOT0909  090061
/*                    Q61DEVLU02      RAOT090A  0A0061
/*                    Q61DEVLU03      RAOT090B  0B0061
/*                    Q61DEVLU04      RAOT090C  0C0061
/*                    Q61DEVLU05      RAOT090D  0D0061
/*
/* DHCF                 H24020CE      RAOT090E  0E0061
/*                    H24020CF      RAOT090F  0F0061
/*                    H24020CG      RAOT090G  100061
/*                    H24020CH      RAOT090H  110061
/*                    H24020CI      RAOT090I  120061
/*
/* REMOTE MANAGEMENT   M24020CJ      RAOT090J  130061
/*
-----
MONMSG MSGID(CPF0000) /* Ignore errors */
VRYDEV DEV(RAONN RAONN1 RAONN2 RAONN3) STATUS(*OFF)
VRYDEV DEV(E24020C1 E24020C2 E24020C3 E24020C4) +
STATUS(*OFF)
VRYDEV DEV(A24020C5 A24020C6 A24020C7) STATUS(*OFF)
VRYDEV DEV(C24020C8) STATUS(*OFF)
VRYDEV DEV(Q61DEVLU09 Q61DEVLU0A Q61DEVLU0B +
Q61DEVLU0C Q61DEVLU0D) STATUS(*OFF)
VRYDEV DEV(H24020CE H24020CF H24020CG H24020CH +
H24020CI) STATUS(*OFF)
VRYDEV DEV(M24020CJ) STATUS(*OFF)
VRYCTLU CTLU(P24020C3) STATUS(*OFF)
VRYLIN LINE(L24020) STATUS(*OFF)
-----

```

```

DLTDEVD  DEVD(RAON*)
DLTDEVD  DEVD(E24020C*)
DLTDEVD  DEVD(A24020C*)
DLTDEVD  DEVD(C24020C*)
DLTDEVD  DEVD(Q61DEVLU*)
DLTDEVD  DEVD(H24020C*)
DLTDEVD  DEVD(M24020C*)
DLTCUD   CUD(P24020C3)
DLTLIND  LIND(L24020)
CRTLIND  LIND(L24020) LINNBR(61) TYPE(*SD LCS) CNN(*MP) +
        RATE(9600) NONRTNZ(*YES) WIRE(4) +
        ONLINE(*YES) STNADR(C3) EXCHID(0222696A) +
        TEXT('SNA Host line 124020 with subarea 24')
CRTCUD   CUD(P24020C3) TYPE(PU2) MODEL(0) CTLADR(0061) +
        LINE(L24020) ONLINE(*YES) DLYFEAT(*NO) +
        TEXT('SNA Host control unit P24020C3 on +
        L24020')

/*-----*/
/*          INDEPENDENT LU DEFINITIONS          */
/*-----*/

CRTDEVD  DEVD(RAONN) DEVADR(000061) DEVTYPE(*PEER) +
        MODEL(0) CTLU(P24020C3) LCLLU(RAOTNNC0) +
        RMTLU(RA0AS4A) TEXT('Device Description +
        for          RALYAS4A')
ADDDEVMODE DEVD(RAONN) MODE(MODS361) MAXSSN(8) +
        PREBNDSSN(0) MAXSRCSSN(4) MAXCNV(8) +
        INPACING(7) OUTPACING(7) MAXLENRU(256) /* +
        Mode for Network USIBMRA */
CRTDEVD  DEVD(RAONN1) DEVADR(000061) DEVTYPE(*PEER) +
        MODEL(0) CTLU(P24020C3) LCLLU(RAOTNNC1) +
        RMTLU(RAOTNNB0) TEXT('Device Description +
        for          REMOTE1')
ADDDEVMODE DEVD(RAONN1) MODE(MODS361) MAXSSN(8) +
        PREBNDSSN(0) MAXSRCSSN(4) MAXCNV(8) +
        INPACING(7) OUTPACING(7) MAXLENRU(256) /* +
        Mode for Network USIBMRA */
CRTDEVD  DEVD(RAONN2) DEVADR(000061) DEVTYPE(*PEER) +
        MODEL(0) CTLU(P24020C3) LCLLU(RAOTNNC1) +
        RMTLU(RA0AS4A) TEXT('Device Description +
        for          REMOTE2')
ADDDEVMODE DEVD(RAONN2) MODE(MODS361) MAXSSN(8) +
        PREBNDSSN(0) MAXSRCSSN(4) MAXCNV(8) +
        INPACING(7) OUTPACING(7) MAXLENRU(256) /* +
        Mode for Network USIBMRA */
CRTDEVD  DEVD(RAONN3) DEVADR(000061) DEVTYPE(*PEER) +
        MODEL(0) CTLU(P24020C3) LCLLU(RAOTNNC1) +
        RMTLU(RA0AS4A) TEXT('Device Description +
        for          REMOTE3')
ADDDEVMODE DEVD(RAONN3) MODE(MODS361) MAXSSN(8) +
        PREBNDSSN(0) MAXSRCSSN(4) MAXCNV(8) +
        INPACING(7) OUTPACING(7) MAXLENRU(256) /* +
        Mode for Network USIBMRA */

/*-----*/
CRTDEVD  DEVD(E24020C1) DEVADR(010061) DEVTYPE(PLU1) +
        MODEL(0001) CTLU(P24020C3) ONLINE(*YES) +
        EMLKBDTYP(*LOWER) MAXLENRU(2560) TEXT('3270 +
        emulation device on line L24020')

```

```

CRTDEVD  DEVD(E24020C2) DEVADR(020061) DEVTYPE(PLU1) +
          MODEL(0001) CTLU(P24020C3) ONLINE(*YES) +
          EMLKBDTYP(*LOWER) MAXLENRU(2560) TEXT('3270 +
          emulation device on line L24020')
CRTDEVD  DEVD(E24020C3) DEVADR(030061) DEVTYPE(PLU1) +
          MODEL(0001) CTLU(P24020C3) ONLINE(*YES) +
          EMLKBDTYP(*LOWER) MAXLENRU(2560) TEXT('3270 +
          emulation device on line L24020')
CRTDEVD  DEVD(E24020C4) DEVADR(040061) DEVTYPE(PLU1) +
          MODEL(0001) CTLU(P24020C3) ONLINE(*YES) +
          EMLKBDTYP(*LOWER) MAXLENRU(2560) TEXT('3270 +
          emulation device on line L24020')
/*-----*/
CRTDEVD  DEVD(A24020C5) DEVADR(050061) DEVTYPE(*PEER) +
          MODEL(0000) CTLU(P24020C3) ONLINE(*YES) +
          LCLLU(T24020C5) RMTLU(CICSPSPC) +
          PUBAUT(*NORMAL) TEXT('APPC device')
ADDDEVMODE DEVD(A24020C5) MODE(MS38APPC) MAXSSN(1) +
          PREBNDSSN(1) MAXSRCSSN(1) MAXCNV(3) +
          INPACING(0) OUTPACING(0) MAXLENRU(256)
CRTDEVD  DEVD(A24020C6) DEVADR(060061) DEVTYPE(*PEER) +
          MODEL(0000) CTLU(P24020C3) ONLINE(*YES) +
          LCLLU(T24020C6) RMTLU(CICSPSPC) +
          PUBAUT(*NORMAL) TEXT('APPC device')
ADDDEVMODE DEVD(A24020C6) MODE(MS38APPC) MAXSSN(1) +
          PREBNDSSN(1) MAXSRCSSN(1) MAXCNV(3) +
          INPACING(0) OUTPACING(0) MAXLENRU(256)
CRTDEVD  DEVD(A24020C7) DEVADR(070061) DEVTYPE(*PEER) +
          MODEL(0000) CTLU(P24020C3) ONLINE(*YES) +
          LCLLU(T24020C7) RMTLU(CICSPSPC) +
          PUBAUT(*NORMAL) TEXT('APPC device')
ADDDEVMODE DEVD(A24020C7) MODE(MS38APPC) MAXSSN(1) +
          PREBNDSSN(1) MAXSRCSSN(1) MAXCNV(3) +
          INPACING(0) OUTPACING(0) MAXLENRU(256)
/*-----*/
CRTDEVD  DEVD(C24020C8) DEVADR(080061) DEVTYPE(PLU1) +
          MODEL(0000) CTLU(P24020C3) ONLINE(*YES) +
          MAXLENRU(256) TEXT('Device for LU0 with +
          CICS11')
/*-----*/
CRTDEVD  DEVD(Q61DEVLU01) DEVADR(090061) DEVTYPE(PLU1) +
          MODEL(0) CTLU(P24020C3) ONLINE(*YES) +
          MAXLENRU(2048) TEXT('RJE device')
CRTDEVD  DEVD(Q61DEVLU02) DEVADR(0A0061) DEVTYPE(PLU1) +
          MODEL(0) CTLU(P24020C3) ONLINE(*YES) +
          MAXLENRU(2048) TEXT('RJE device')
CRTDEVD  DEVD(Q61DEVLU03) DEVADR(0B0061) DEVTYPE(PLU1) +
          MODEL(0) CTLU(P24020C3) ONLINE(*YES) +
          MAXLENRU(2048) TEXT('RJE device')
CRTDEVD  DEVD(Q61DEVLU04) DEVADR(0C0061) DEVTYPE(PLU1) +
          MODEL(0) CTLU(P24020C3) ONLINE(*YES) +
          MAXLENRU(2048) TEXT('RJE device')
CRTDEVD  DEVD(Q61DEVLU05) DEVADR(0D0061) DEVTYPE(PLU1) +
          MODEL(0) CTLU(P24020C3) ONLINE(*YES) +
          MAXLENRU(2048) TEXT('RJE device')
/*-----*/

```

```

      CRTDEVD  DEVD(H24020CE) DEVADR(0E0061) DEVTYPE(3277) +
                MODEL(*DHCF) CTLU(P24020C3) ONLINE(*YES) +
                PUBAUT(*ALL) TEXT('DHCF Device ')
      CRTDEVD  DEVD(H24020CF) DEVADR(0F0061) DEVTYPE(3277) +
                MODEL(*DHCF) CTLU(P24020C3) ONLINE(*YES) +
                PUBAUT(*ALL) TEXT('DHCF Device ')
      CRTDEVD  DEVD(H24020CG) DEVADR(100061) DEVTYPE(3277) +
                MODEL(*DHCF) CTLU(P24020C3) ONLINE(*YES) +
                PUBAUT(*ALL) TEXT('DHCF Device ')
      CRTDEVD  DEVD(H24020CH) DEVADR(110061) DEVTYPE(3277) +
                MODEL(*DHCF) CTLU(P24020C3) ONLINE(*YES) +
                PUBAUT(*ALL) TEXT('DHCF Device ')
      CRTDEVD  DEVD(H24020CI) DEVADR(120061) DEVTYPE(3277) +
                MODEL(*DHCF) CTLU(P24020C3) ONLINE(*YES) +
                PUBAUT(*ALL) TEXT('DHCF Device ')

/*-----*/
      CRTDEVD  DEVD(M24020CJ) DEVADR(130061) DEVTYPE(PLU1) +
                MODEL(0000) CTLU(P24020C3) ONLINE(*YES) +
                MAXLENRU(256) TEXT('Device for logon to +
                DPCRELAY VTAM application.')

/*-----*/
      VRYLIN   LINE(L24020) STATUS(*ON)
      VRYCTLU  CTLU(P24020C3) STATUS(*ON)
      ENDPGM

```

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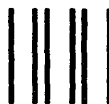
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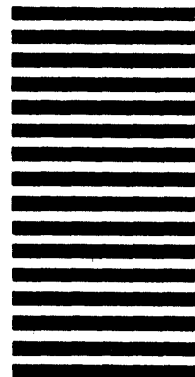
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