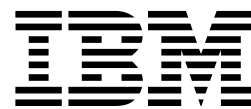


IBM VSE/Enterprise Systems Architecture

Networking Support

Version 2 Release 4



IBM VSE/Enterprise Systems Architecture

Networking Support

Version 2 Release 4

Note!

Before using this information and the product it supports, be sure to read the general information under "Notices" on page xi.

Second Edition (June 1999)

This edition applies to Version 2 Release 4 of IBM Virtual Storage Extended/Enterprise Systems Architecture (VSE/ESA), Program Number 5690-VSE, and to all subsequent releases and modifications until otherwise indicated in new editions.

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Programming Interface Information

This book is intended to help the customer configure the networking part of a VSE system. It guides the customer into using the networking support offered in VSE/ESA.

This book also documents intended Programming Interfaces that allow the customer to write programs to obtain the services of VSE/ESA. This information is identified where it occurs, either by an introductory statement to a chapter or section, or by the following marking:

Programming Interface Information

End of Programming Interface Information
--

About This Book

This manual describes tasks which are necessary to configure the communications part of a VSE system. In particular, it describes those functions of the IBM licensed program Virtual Storage Extended/Enterprise Systems Architecture (VSE/ESA) which are designed to help in performing those tasks.

Although the primary configuration task is **installation**, the manual describes conceptual, planning, and operational aspects as well.

Note that this publication focuses on the **VSE/ESA** functions. It does **not contain all** the information on how to install and make operational a communications network under VSE/ESA. You still have to consult the publications of licensed programs included in VSE/ESA (such as VTAM), or of optional programs for this.

Who Should Use This Book

This publication is intended for the system administrator or the system programmer who is responsible for planning, installing, and maintaining the communications part of a VSE system.

Although VSE/ESA, through its Interactive Interface, substantially reduces the effort of configuring a communications system, a skilled person familiar with IBM telecommunication products must plan and install it. Use the documentation listed in the Online Library *VSE Collection*, SK2T-0060, to obtain a list of the books related to SNA, TCP/IP, VTAM, NCP, CICS, and related (optional) products.

How This Book Is Organized

The manual is structured as follows.

- Chapter 1, “Concepts and Preliminaries” on page 1 briefly refreshes SNA terminology, gives an overview of a communications network, and lists requirements.
- Chapter 2, “Configuring a Communications Device” on page 37 describes how you configure your telecommunication devices.
- Chapter 3, “Special Configuration Tasks” on page 123 describes some special tasks such as deleting devices, or defining remote non-SNA devices.
- Chapter 4, “Configuring a Multiple-Domain Network” on page 135 describes how you define a multiple-domain network.
- Chapter 5, “Connecting Two VSE/ESA Hosts in an APPN Network - An Example” on page 183 shows a simple example of two VSE/ESA hosts that are connected in an APPN network.
- Chapter 6, “Tailoring VTAM” on page 193 describes how you change the default values of various VTAM entities.

- Chapter 7, “Operating Considerations” on page 203 presents most of the common rules and commands for operating a network, single-domain and multiple-domain.
- Appendix A, “Naming Convention” on page 221 lists the naming rules which the Interactive Interface uses in assigning resource names.
- Appendix B, “Job Skeletons” on page 227 lists the content of those VSE/ESA job skeletons which relate to communications and networking.
- Appendix C, “VSE/ESA Definitions for Autoinstall Terminals” on page 247 lists the IBM-supplied autoinstall terminal definitions, plus logon mode table IESINCLM.

Where to Find More Information

References to related publications are given in the text. For more information on the products and statements mentioned in this book refer to these VSE/ESA publications:

- *VSE/ESA Planning*
- *VSE/ESA Guide to System Functions*

Summary of Changes

Changes to this Manual for VSE/ESA Version 2 Release 4

This information is new:

- Support for the IBM S/390 **Open Systems Adapter 2 (OSA-2)**, which:
 - Provides you with industry-standard and low-cost connectivity to clients on directly-attached local area networks (LANs).
 - Allows you to configure the OSA-2 Ethernet, Token-Ring, FDDI, or ATM features, to communicate with VTAM and TCP/IP applications.

For overview information about using OSA-2 with VSE/ESA 2.4, you should refer to the Chapter “Extended Networking Support” in the *VSE/ESA Planning*, SC33-6703.

- Support for the IBM **3172 Interconnect Controller**, which provides you with similar capabilities to those for OSA-2.
- The use of the Interactive Dialog to configure the attachments of LANs and devices (such as Workstations, Workstation Gateways, and so on) to OSA ports and the 3172 Interconnect Controller.
- Support for the CICS Transaction Server for VSE/ESA, which:
 - Provides increased affinity and compatibility with CICS on OS/390.
 - Offers increased reliability, availability, and performance.
 - Enables application and workload growth.
 - Provides new application function to meet increasing business needs (such as e-business).
 - Has CICS Server, CICS Client, and CICS Gateway function in one product.
 - Supports coexistence with CICS/VSE 2.3, to aid in migration to the CICS Transaction Server.

These changes have been made:

- The terminology in the manual has been updated to reflect the latest levels of hardware and software.

Notes:

1. Throughout this publication, the telecommunication access method that is covered is **VTAM** (which is the only telecommunications access method supported by the Interactive Dialog of VSE/ESA 2.4, and which can be used with the CICS Transaction Server).
2. If you also wish to use **BTAM** within your configuration, you should refer to the section “Considerations for using BTAM” on page 35.
3. This manual provides an introduction to the use of TCP/IP within VSE/ESA 2.4 (see “Using TCP/IP in Your Configuration” on page 7). If, however, you wish to use **TCP/IP** within your configuration you should refer to the IBM manual *TCP/IP for VSE/ESA User's Guide* SC33-6601 for details of how to do so. You should be aware that:
 - The Interactive Dialog of VSE/ESA 2.4 does not support the use of TCP/IP.

- TCP/IP is provided in the base of VSE/ESA 2.4. In Demonstration Mode (only), you can use TCP/IP without an enabling key and free of charge. In production mode, however, you must pay for its use.

For a complete overview...

of the functions which are new with VSE/ESA 2.4 refer to the IBM manual *VSE/ESA Planning*, SC33-6703.

Chapter 1. Concepts and Preliminaries

This chapter provides you with an introduction to VSE/ESA networking concepts and possibilities, under these main sections:

- “A Summary of SNA Concepts”
- “Using TCP/IP in Your Configuration” on page 7
- “Hardware Configuration Overview” on page 7
- “Networking Functions with VSE/ESA” on page 20
- “Networking Requirements” on page 30

A Summary of SNA Concepts

This is a short SNA refresher. For the details, refer to the IBM publications

SNA Network Concepts and Products, GC30-3072

SNA Technical Overview, GC30-3073

VTAM Network Implementation Guide, SC31-6494.

Also check the glossary at the end of this publication for terms used in this manual.

The term **network** used in this manual always means **SNA network** unless otherwise specified. (You may encounter a different application of the term, for example, to a VSE/POWER PNET connection, possibly over BSC lines only.) An SNA network is one kind of communication system; it is based on the SNA architecture which is the description of the:

- logical structure
- formats
- protocols or rules and
- operational sequences of information flow throughout the network.

Networks referred to in this manual are **user-application networks**, that is, a configuration of data processing products such as processors, communication controllers, and display stations that let a user at any display station in the network access application programs at any processor in the network.

SNA defines both the functional responsibilities of each network component and the rules for communication between components. SNA also defines the principles by which a network administrator specifies a network, arranges the network configuration, and controls the network functions according to the needs of the users.

Because SNA prescribes the manner in which a network function should be carried out, any two SNA products with equivalent functions can easily interact according to the principles of the SNA architecture. This is a major advantage because of the:

- Ability to interconnect diverse products into (a) unified system(s).
- Independence of users from the network configuration.
- Maximum flexibility in configuring a network.

Summary of SNA Concepts

- Preservation of investment when the network changes or expands.
- Connectivity of certain existing non-SNA display stations to SNA networks for easier transition.

As pointed out before, networks serve users. A user can be a person logging on to a display station to obtain a service. If that user interacts with the system via an application program, then that program is also considered a user in an SNA sense.

The following section describes SNA networking concepts for the more traditional SNA network: the **subarea network**. After that, some basics about **Advanced Peer-to-Peer Networking** (APPN) will be presented.

SNA Components in Subarea Networks

In order to communicate with the network, a user must be defined to SNA. This is accomplished via the **logical unit (LU) concept**.

LUs represent users to the system. Every LU in the network is associated with a **physical unit (PU)**. PUs are sets of SNA components that control links, display stations, controllers, and processors in the network. Each controller and processor contains a PU.

If a user (described as an LU) wants to communicate with another user (LU) or an application program (also an LU), then a so-called **session** is established between the two LUs.

Before two LUs establish a session they must agree on a set of protocols used for the entire session. This set is defined by **session parameters** which you can define in a **logon mode table**. Either user can end that session via pre-established rules (details are given in "Session Termination" on page 209). **Application program LUs are called primary LUs (PLU), display station LUs are called secondary LUs (SLU).**

To address each LU in the network, a **network name** is assigned. Before the LU-LU session begins, the network determines the **network address** via the network name. The units called network addressable units (NAUs), however, are not just display stations and application programs, as described above.

These NAUs can be hardware and programming components within display stations, controllers, and processors. SNA recognizes three different kinds of NAUs, the:

- Logical Unit (LU).
- Physical Unit (PU).
- System Services Control Point (SSCP).

SNA components for PUs and LUs are contained in **major and minor nodes**. Major and minor nodes are the controllable elements of the network. A major node is a set of minor nodes. Each major node can be controlled as a whole or parts of it, that is, through its minor nodes. **Application program major nodes** consist of one or more application program LU definitions which are the minor nodes. **SNA major nodes** consist of one or more PUs attached via a channel, an integrated communication adapter (ICA) or a communication controller. The **minor nodes** are the PUs (controllers) and the associated LUs (display stations). Minor nodes are

defined by definition statements, their names are listed in the corresponding statements. Major nodes are defined by combining these definition statements for the minor nodes into sets and by cataloging these sets in the library. The name of each major node is the label of its definition statement.

SSCPs are also sets of SNA components. But unlike LUs and PUs which represent user and machine resources, the SSCP manages the entire SNA network (in case of single-processor networks) or significant parts of it (in case of multiple-processor networks).

The part which the SSCP manages is also called **domain**. The SSCP resides in the network processor. A single-processor network is called a **single-domain** network. In a network with more than one processor, there is more than one SSCP. Consequently, such a network is called a **multiple-domain or cross-domain** network.

In a cross-domain network, the other domains and the resources in these domains must be defined. You either create a **cross-domain resource manager (CDRM)** and the **cross-domain resources (CDRSC)**, respectively. Or, instead of predefining CDRSCs, you let your telecommunication program, VTAM, dynamically allocate and define some or all of them.

The term **node** is used in SNA to indicate a point within the network that contains SNA components. Therefore, PUs and SSCP, **but not LUs**, are SNA nodes.

Any network, be it a single domain or cross-domain network, can be broken down into SNA components or nodes and these can be grouped according to the services they provide. Nodes are either **subarea nodes** or **peripheral nodes**. A subarea node can receive messages from any origin and move them to any destination in the network provided that a link or group of links is available to connect the origin and the destination area. A peripheral node passes messages only between an NAU within that node and the subarea to which it is attached.

A processor that has peripheral nodes (PUs) directly attached to it constitutes a subarea node **with SSCP** and all PUs being peripheral nodes. If PUs are attached via a communication controller, this communication controller is called a subarea node **without SSCP**. This case comprises a subarea node **with SSCP**, a subarea node **without SSCP**, and **peripheral nodes**. In a single-domain environment, there is only one subarea node with an SSCP. In a multiple-domain environment, multiple SSCP exist. Thus, there are multiple subarea nodes with SSCP.

Each subarea node has a **routing table** which contains all destination subareas that can be reached from that node.

Links with identical characteristics, that is, data-carrying capacity, can be grouped into so-called **transmission groups**. Such a group has better availability than a single link. The term 'transmission group' itself, however, is also applied to single SDLC links and to channels.

The set of transmission groups underlying part of the path between two subarea nodes involved in a session is called the **explicit route**. The remaining link - from the subarea node to the peripheral node - is called **route extension**.

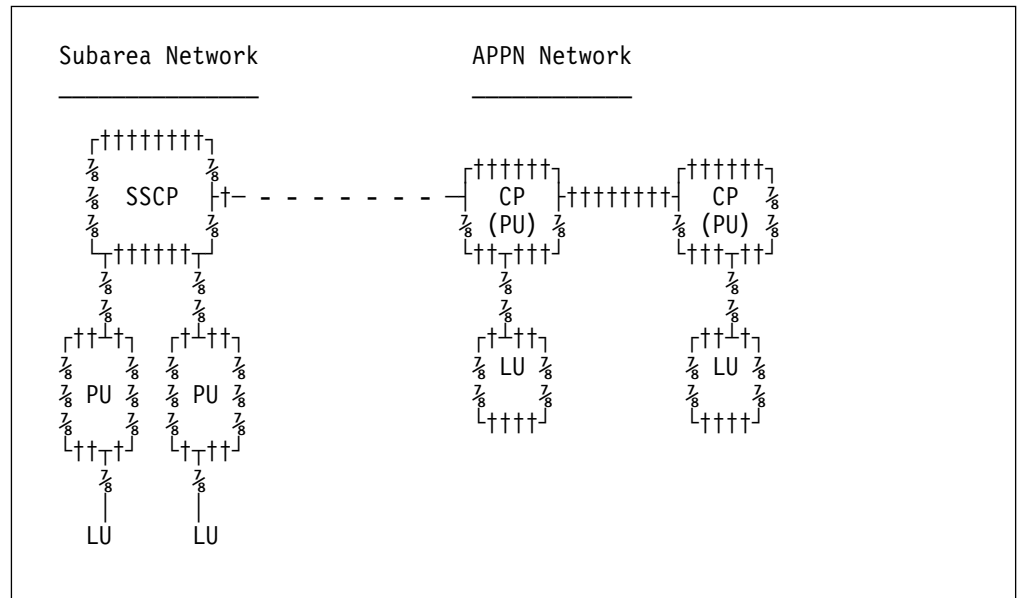
SNA designers have implemented the concept of **multiple active routing** to provide more than one route between any two subarea nodes. Multiple routes

Summary of SNA Concepts

clearly increase the probability that a route will be available when a session needs to be established.

SNA Components in APPN Networks

In a subarea network, as described above, a **hierarchical order** between components prevails. In an APPN network, relations are **peer-to-peer**. This is illustrated, in a highly simplified manner, in the following diagram.



As you see from the broken line in the above diagram, an APPN network may connect to a subarea network.

APPN is an extension to SNA for peer communications. APPN builds upon the *low-entry networking* (LEN) architecture and *Advanced Program-to-Program Communication* (APPC).

Some of the characteristics of APPN include:

- If a resource wants a session with any other resource in the network, APPN network nodes locate the destination resource. The originator does not need to know anything about the location of the other resource. The destination resource does not need to be defined to the originator.
- When a session is requested, the APPN network nodes determine the best route for the session at the time of the session request. No routes need to be predefined.
- Independent LUs do not have to be located on adjacent PUs to establish sessions without the use of an SSCP.
- Network definition is minimized; only local resources need to be defined.

The following sections introduce three basic components of an APPN network:

- Control point
- Network node
- End node.

Control Point (CP)

Each APPN node has a control point that manages the node and its resources. Control points provide function for the APPN network similar to the function the SSCP provides for the subarea network.

The control point:

- Activates and deactivates network resources
- Assists in session initiation and termination
- Routes cross-domain requests
- Maintains a dynamic representation of the network in the *topology and directory services databases*.

In APPN networks, a control point does not initiate sessions with the LUs in its domain. It does, however, initiate sessions with adjacent control points (called **CP-CP sessions**) for exchanging control data used in routing and directory services.

APPN control points exist in APPN **network nodes** and **end nodes**. These are discussed in the following.

Network Node

Network nodes have a control point which manages the node.

- Network nodes are capable of **locating resources in the network**. If the resource on one network node wants a session with a resource on another network node, the network node of the origin resource broadcasts a request to locate the destination resource. No predefinition of a destination LU is required. All of the network nodes work together to locate the resource.
- Once a resource is located, network nodes can **determine the best route** for the session to travel.
- Network nodes can be **intermediate routing nodes**.
- Network nodes are capable of **dynamic definitions**. If an LU wants to establish a session with an unknown resource, the network node locates the resource. The network node also stores the location of that resource for future session requests.
- Network nodes maintain a **dynamic database** of what the network looks like. The database consists of
 - Directory services database, and
 - Topology database.

The **directory services database** contains information on resources in the network, including the node's local resources, and is updated dynamically as a result of searches for partner LUs.

The **topology database** includes information on network nodes and transmission groups (TGs) and is updated dynamically whenever there is a change to the intermediate routing network.

- The **composite network node** is a network node that consists of a VTAM and any NCPs (network control programs) that it owns. It appears to the APPN network as a single node.

Summary of SNA Concepts

End Node

The APPN end node is conceptually located on the periphery of an APPN network. An end node does not perform intermediate routing of sessions; it can only be the origin or destination of a session.

Although an end node has a control point, it must depend on a network node to provide full access to the APPN network. This network node is known as the **network node server**.

- The end node interacts with a network node to request and receive directory and route selection services.
- The end node is capable of CP-CP sessions. An end node may have only one CP-CP session, which must be with its network node server. The end node can be connected to other network nodes or end nodes for **routing purposes**.
- An end node dynamically registers its resources in the directory services database of its network node server. This allows searches from other nodes to locate the resources on this node.

Typically, end nodes provide similar services for an APPN network as those provided by *data hosts* in the subarea network. Both a data host and an end node **primarily process applications** and do not provide network services for the resources attached to them.

Nodes with Both Subarea and APPN Function

Nodes that need to be able to directly connect to both subarea and APPN networks require both subarea and APPN function.

- **Interchange Node**

APPN networks and subarea networks can be integrated seamlessly. An **interchange node** is an APPN network node with full subarea SSCP functions. Through its ability of **protocol conversion** between subarea and APPN networks, the interchange node provides support for

- Sessions from APPN nodes through and into subarea networks
- Sessions from subarea nodes through and into APPN networks.

- **Migration Data Host**

The migration data host is an **APPN end node** that resides on the border of and is connected to both an APPN and a subarea network.

The networking support that was built into VSE/ESA is specifically geared to the subarea network. Therefore, the material in this manual mostly deals with the subarea network.

For the implementation of an APPN network under a VSE/ESA system, you have to supply certain collections of data. They are described by way of a simple example: the connection of two network nodes (VSE/ESA systems). Please refer to Chapter 5, "Connecting Two VSE/ESA Hosts in an APPN Network - An Example" on page 183.

Using TCP/IP in Your Configuration

Like VTAM, TCP/IP is a communications protocol. Unlike VTAM, however, TCP/IP can be used by almost every type of computer. Providing each computer has an operating system that has a TCP/IP implementation, you can build a network consisting of host machines, mini- and micro-computers, and connect to an Intranet or to the Internet.

Implementations of TCP/IP exist for almost all operating system platforms, including OS/390, VM, OS/400, AIX, Windows 95/NT/98, *and VSE/ESA*. TCP/IP is also supported by almost all types of LAN (including Token-Ring, Ethernet, FDDI). As a result, you can integrate your VSE/ESA host into almost any configuration of hardware and LAN / WAN network.

By taking advantage of the benefits of TCP/IP for VSE/ESA, you can:

- Transfer files between VSE/ESA systems and other computers running TCP/IP, using the File Transfer Program (FTP) of TCP/IP. In many cases this is much easier than using previous VSE/ESA utilities (such as VSE/DSNX).
- Log-on to VSE/ESA applications from PCs or UNIX (AIX) workstations using the Telnet server.
- Log-on to UNIX (AIX), AS/400, or other TCP/IP systems, *directly* from a CICS session or from batch.
- Print files sent from UNIX (AIX) systems or personal computers, on VSE-controlled printers, using a Line Printer Daemon (LPD) server.
- Print files from sent from VSE/ESA, on workstation- or LAN-printers, using an LPR client.
- Transparently access VSE/ESA data files from a remote host, via a Network File System (NFS).
- Use the VSE/ESA host as a Web Server, allowing access to host data from both Intranet and Internet customers.

The main document covering the installation, customization, and use of TCP/IP for VSE/ESA, is the IBM manual *TCP/IP for VSE/ESA User's Guide*, SC33-6601.

Hardware Configuration Overview

In VSE/ESA, and consequently in the VSE/ESA documentation, the configuration of attached devices is divided into the following categories:

- Non-Communication Devices
Tapes, disks, and some others.
- Communication Devices (by type of attachment):
 - **Local Channel attachments**
 - SNA
 - Non-SNA
 - **Remote attachments**
 - ICA-attached
 - SNA (SDLC line protocol)

Hardware Configuration Overview

- non-SNA (BSC line protocol)
- 37xx Communication Controller-attached
 - SNA (SDLC line protocol)
 - non-SNA (BSC line protocol)
- **Attached to a LAN**
 - Attached to a LAN where the LAN is either Token-Ring, Ethernet (including Fast Ethernet), FDDI, or an ATM in LAN emulation mode, and is connected to an *OSA-2 port*
 - SNA clients/servers
 - TCP/IP clients/servers
 - Attached to a LAN where the LAN is either Token-Ring, Ethernet (including Fast Ethernet), or FDDI, and is connected to a *3172 Interconnect Controller*
 - SNA clients/servers
 - TCP/IP clients/servers

This publication deals with the configuration of **communication devices**. The configuration of non-communication devices is described in the IBM manual *VSE/ESA Administration*.

Figure 1 on page 9 illustrates the various attachments in a configuration of communication devices.

Additional notes to configuration illustration (Figure 1):

1. The illustration comprises a *single domain*, that is, **one** host processor with devices attached to it. This publication also addresses the *multiple-domain* network, sometimes called *cross-domain* network. This is a connection of two or more single domains.
2. In place of an SDLC or BSC line, a "line" may be routed through an *X.25 Packet-switched Data Network (PSDN)*.
3. The telecommunications access method you normally use with VSE/ESA 2.4 is **VTAM**. It is however *possible* to use **BTAM**: see "Considerations for using BTAM" on page 35 for further information.
4. If you plan to use TCP/IP in your configuration (which is not supported by the dialog of the Interactive Interface of VSE/ESA), refer to *TCP/IP for VSE/ESA User's Guide*, SC33-6601, for details.
5. The IBM System/390 **Open Systems Adapter 2 (OSA-2)** and IBM **3172 Interconnect Controller** provide you with industry-standard connectivity to clients/servers on LANs, or via an OSA-2 to clients/servers on an ATM network used in Lan Emulation mode.
6. Connecting an ATM via an OSA-2 is not supported by the dialog of the Interactive Interface. You make your connection using the OSA/SF configuration software that accompanies this feature.
7. You establish remote communication for CMOS processors (such as the IBM S/390 Multiprise 2000 or G5 processors) via an OSA-2 or 3172 Interconnect Controller, and using routers/bridges on the LAN. This is instead of using an ICA (Integrated Communications Adapter) that was part of earlier processors.
8. For an OSA-2 and the 3172 Interconnect Controller, you can define a logical Box Manager connection for sending management information to NetView.

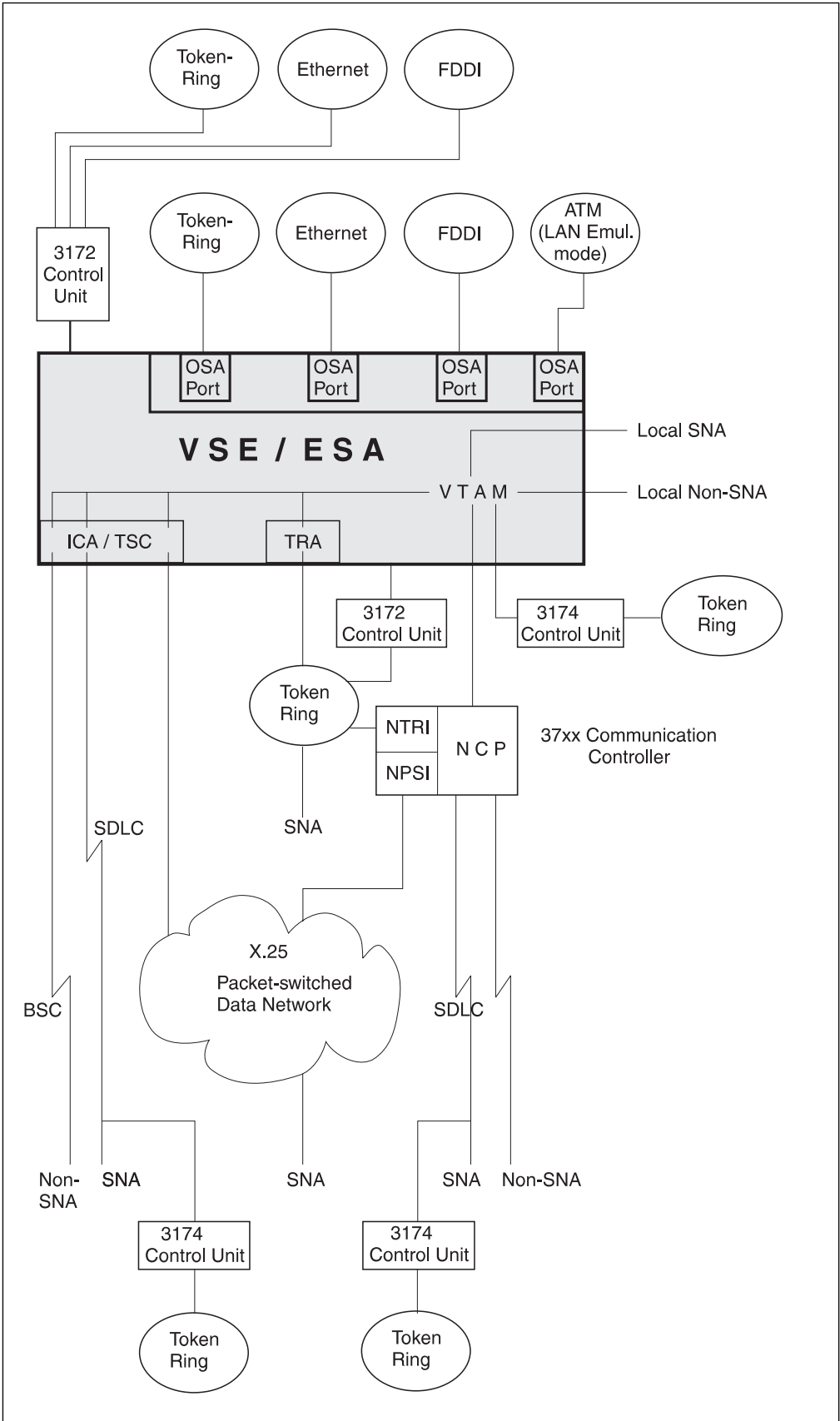


Figure 1. Communication Device Attachments in a Single Domain (Conceptual)

Hardware Configuration Overview

The following sections briefly describe the various connections/devices, VSE/ESA's support, and where to find information in this publication.

Local Non-SNA

Local non-SNA devices are attached via a

- non-SNA control unit.
- Workstation Subsystem Controller of an IBM ES/9221.

The *Configure Hardware* dialog fully supports the configuration of local non-SNA devices. Refer to Chapter 2, "Configuring a Communications Device" on page 37.

In the dialog, you define the terminal characteristics but not a physical unit (control unit).

Local SNA

Local SNA devices are attached via a

- Workstation Subsystem Controller of an IBM ES/9221, or
- one of the models of local SNA control units IBM 3174 or 3274.

The telecommunication access method is **VTAM** (which also supports local **non-SNA** devices).

The *Configure Hardware* dialog fully supports the configuration of local SNA devices. Refer to Chapter 2, "Configuring a Communications Device" on page 37.

In the dialog, you define the *physical unit* (control unit) and the *logical units*. Compare this with the configuration of local non-SNA devices where you can only define the **terminal** characteristics but not the control unit.

Please note that VTAM also offers the capability of **dynamically defining** 3174-attached dependent LUs. For details refer to the IBM manual *VTAM Network Implementation Guide* SC31-6494-1 .

Connecting a LAN to your VSE/ESA host

The dialogs of the Interactive Interface support six methods of connecting a LAN to your VSE/ESA host:

1. to an IBM S/390 Open Systems Adapter 2 (OSA-2) port.
2. to an IBM 3172 Interconnect Controller serving as a gateway.
3. to an IBM 3174 (local or remote) Control Unit serving as a gateway for a Token-Ring LAN.
4. to the Token-Ring interface coupler (TIC) which belongs to the Token-Ring Network Attachment Subsystem (TRSS) of the 37xx communication controller. NCP Token-Ring Interconnection (NTRI) controls the TRSS.
5. to the Token-Ring Adapter (TRA) of an IBM ES/9221.
6. to the Token-Ring Adapter of an IBM ES/9221, plus an IBM workstation as a gateway **within a Token-Ring**.

Using the attachment of a Token-Ring Network, you can attach **IBM workstations**, for example, to the Token-Ring to switch into 3270 emulation mode and to then access VSE/ESA host functions. In this way, a workstation on the Token-Ring can be used as a CICS terminal device.

Here are illustrations of the six methods of connecting a LAN:

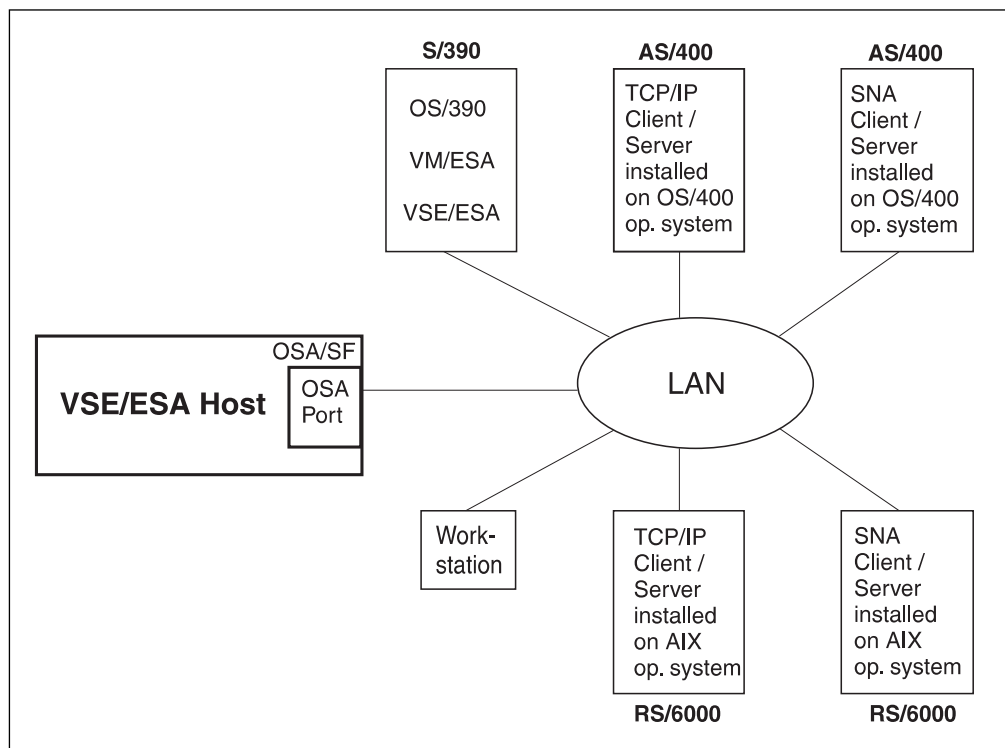


Figure 2. Connecting a LAN to an Open Systems Adapter 2 (OSA-2) port

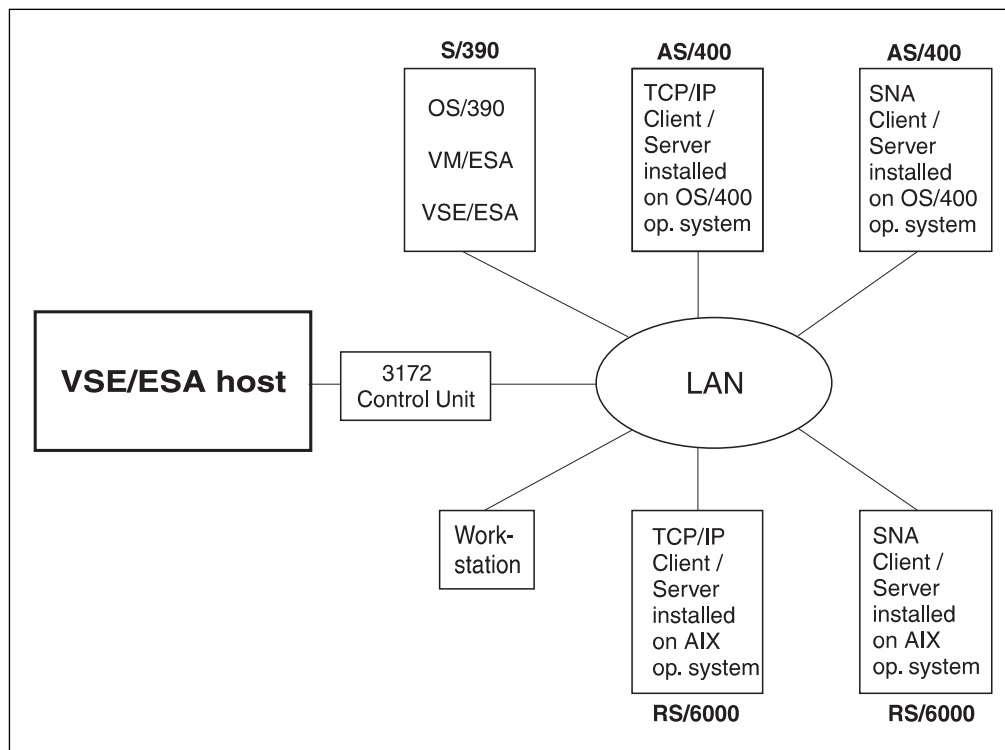


Figure 3. Connecting a LAN to a 3172 Interconnect Controller

Hardware Configuration Overview

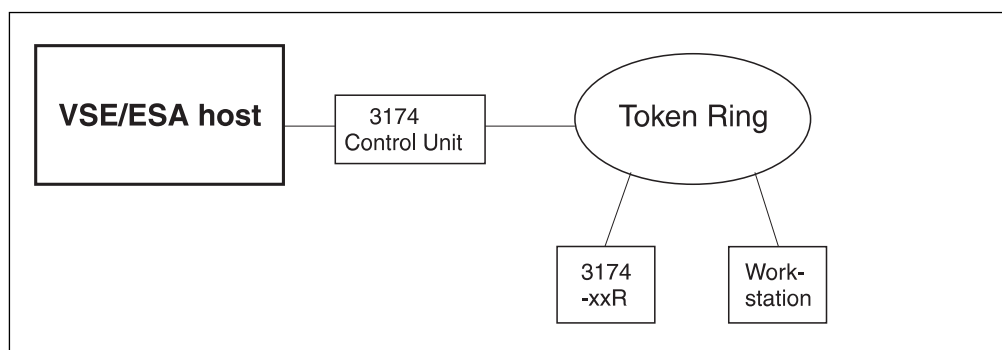


Figure 4. Connecting a Token-Ring using 3174 Control Unit as Gateway

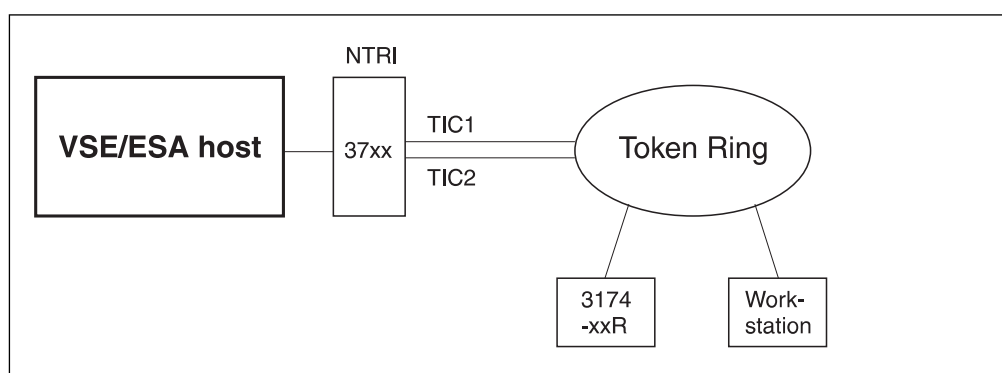


Figure 5. Connecting a Token-Ring to a Token-Ring Adapter at IBM 37xx

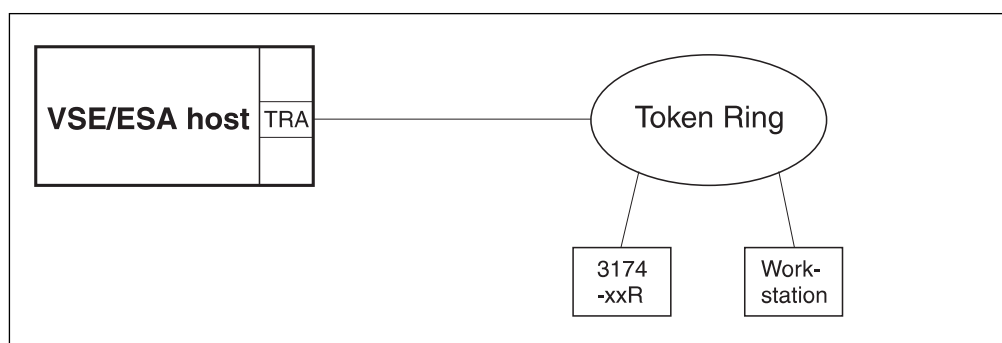


Figure 6. Connecting a Token-Ring to an ES/9221 Integrated Token-Ring Adapter

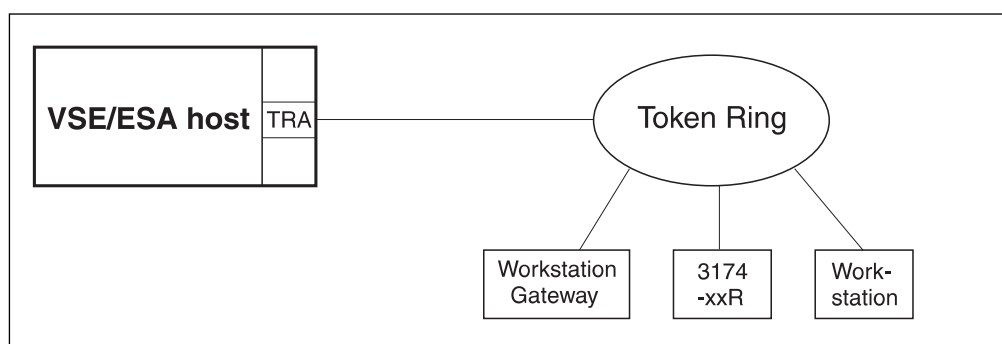


Figure 7. Connecting a Token-Ring to an ES/9221 Token-Ring Adapter (with Workstation Gateway)

These dialog-supported attachments are briefly described in the following sections.

1. Connecting a LAN to an IBM OSA-2 Adapter

This type of connection (shown in Figure 2 on page 11) allows you to connect a LAN to a VSE/ESA host.

The *Configure Hardware* dialog supports this connection (refer to “Connecting a LAN to an OSA-2 or 3172” on page 46 and “OSA-Attached Configuration Example” on page 94 for details of how the dialog is used). You use:

- One **ADD** statement to define an **OSA** port.
- One **ADD** statement for the **OSAD** (which is used by the pre-installed OSA/SF software on the VSE/ESA host).

Notes:

1. Using the dialog, you can connect three types of LAN: Token-Ring, Ethernet (which includes Fast Ethernet), or FDDI. You can also make a logical connection (via Box Manager) for sending information to NetView installed on a Token-Ring LAN.
2. Using the OSA-2 ATM (asynchronous transfer mode) supported by VSE/ESA 2.4, you can configure a LAN in ATM LE (LAN emulation) mode, using the OSA/SF dialogs and customization programs.

See also “Devices attached to a LAN connected via an OSA-2” on page 15 for details of how to attach devices to the LANs described here.

2. Connecting a LAN to an IBM 3172 Control Unit

This type of connection (shown in Figure 3 on page 11) allows you to connect a LAN to a VSE/ESA host.

The *Configure Hardware* dialog supports this connection (refer to “Connecting a LAN to an OSA-2 or 3172” on page 46 for details). You use one **ADD** statement only to define a **3172** port.

Using the dialog, you can connect three types of LAN to the 3172: Token-Ring, Ethernet (which includes Fast Ethernet), and FDDI. You can also make these connections:

- a logical Box Manager connection for sending information to NetView that is installed on a Token-Ring LAN.
- a Token-Bus connection, for connecting to a network of Personal Computers.

See also “Devices attached to a LAN connected via a 3172” on page 15 for details of how to attach devices to the LANs described here.

3. Connecting a Token-Ring to an IBM 3174 Control Unit

This type of connection (shown in Figure 4 on page 12) does not require an **integrated adapter** at the host node. It can therefore be used with any processor supported by VSE/ESA 2.4.

Hardware Configuration Overview

The IBM 3174 Model control unit must have the IBM Token-Ring Network Gateway feature, feature code 3025.

The *Configure Hardware* dialog supports the configuration of this token-ring connection. For a detailed description refer to “Defining Token-Ring Attached Devices via Gateway” on page 124.

4. Connecting a Token-Ring to the TIC of an IBM 37xx

Using this type of connection (shown in Figure 5 on page 12), the Token-Ring Network Attachment Subsystem (TRSS) of the IBM 37xx communication controller provides a connection capability to the IBM Token-Ring Network. It works like a gateway device, such as the one described in the preceding section.

The TRSS consists of a number of token-ring adapters (TRA). The actual number of TRAs depends on the communication controller model and the installed usage tier. Each TRA has up to two token-ring interface couplers (TIC). One TIC can access only one IBM local area network (LAN).

The TRSS is controlled by the **NCP Token-Ring Interconnection (NTRI)**.

For this connection, the *Configure Hardware* dialog supports the configuration of units at the token ring, for example:

- An IBM 3174 xxR control unit (Model 6xR, for example)
- IBM workstations.

The description of this configuration is imbedded in the section “Describing the NCP Link(s)” on page 62.

5. Connecting a Token-Ring to a Token-Ring Adapter

As with the TIC of the IBM 37xx, using this type of connection (shown in Figure 6 on page 12) the IBM token-ring adapter (TRA) of the IBM ES/9221 provides a physical link and access control to the IBM Token-Ring Network. A gateway device, such as the one described under item 3., is not necessary.

For this connection, the *Configure Hardware* dialog supports the same devices as for an NTRI-controlled connection. Refer to the preceding section.

This configuration resembles the configuration of physical units/logical units connected to an ICA or TSC through an SDLC line. It is described in “Defining an IBM Token-Ring Adapter Link” on page 57.

Several single domains can be connected through an IBM Token-Ring Network thereby establishing a *multiple-domain network*. With the *network definition skeleton* (its name is SKDTRNET), VSE/ESA supports the multiple-domain configuration of two processors that are equipped with token-ring adapters. See also the section in this chapter “Multiple-Domain Configuration” on page 19.

6. Connecting a Token Ring to a Token-Ring Adapter, with Workstation Gateway

This type of connection (shown in Figure 7 on page 12) is almost identical to the one described in the preceding paragraphs. The difference lies in the **devices** that are attached to the token ring.

You may only define a maximum of 64 physical units (PUs) per token-ring adapter. To overcome this limit, you can intersperse several workstation gateways into the token ring, each workstation counting as one PU with up to 32 logical units (LUs). The other workstations that are "assigned" to this PU **must be defined as LUs only**.

The Hardware Configuration dialog offers a specific selection of 'PC Gateway', from the set of Display and Printer physical units. The selection panel is shown in Figure 30 on page 68.

Devices attached to a LAN connected via an OSA-2

The *Configure Hardware* dialog supports the attachment of remote **SNA** devices to the type of LAN you connect to an OSA-2 port (see also "OSA-Attached Configuration Example" on page 94).

The attachment of remote **non-SNA** devices is not supported by the dialog.

For information about how to configure the LAN and the remote **SNA and non-SNA** devices attached it, you should also refer to these publications:

- *Planning for the S/390 Open Systems Adapter Feature*, GC23-3870.
- *VSE/ESA Open Systems Adapter Support Facility User's Guide*, SC28-1946.

Devices attached to a LAN connected via a 3172

The *Configure Hardware* dialog supports the attachment of remote **SNA** devices to the type of LAN you connect to a 3172 Interconnect Controller. The attachment of remote **non-SNA** devices is not supported by the dialog of the Interactive Interface.

For information about how to configure the LAN and the remote **SNA and non-SNA** devices attached to it, you should also refer to these publications:

- *3172 Hardware Planning Guide*, GA27-4003.
- *Using the 3172 Operator Facility User's Guide*, SC30-3573.

These publications are also contained on the Online Library *Hardware Collection*, SK2T-5843.

Remote SNA, ICA-Attached

An Integrated Communication Adapter (ICA), for example the *Telecommunication Subsystem Controller* (TSC) of the IBM ES/9221, are part of the processor hardware. They allow attachment of both SNA (SDLC line protocol) and non-SNA (BSC line protocol) devices to these processors without the use of an IBM 37xx communication controller.

A special case is the attachment, at the ICA/TSC, of remote SNA devices via a Packet-Switched Data Network (PSDN). VTAM controls communication over this type of link by means of its **X.25 Communication Adapter Support**.

The *Configure Hardware* dialog fully supports the configuration of ICA-attached **SNA** devices. Refer to Chapter 2, "Configuring a Communications Device" on page 37.

In the dialog, you define links, physical units, and logical units.

Remote Non-SNA, ICA-Attached

Remote non-SNA devices that are ICA-attached, use the BSC line protocol. Over BSC lines, **VTAM** supports only 3270 terminals.

The VSE/ESA **dialogs** do not support the configuration of ICA-attached non-SNA devices. You must code the VTAM definition statements yourself. Refer to “ICA-Attached Devices” on page 130.

Remote SNA, 37xx-Attached

The IBM 37xx communication controller is a unit separate from the host processor. Its operations are controlled by one or more programs stored and running in the unit (NCP, for example). A communication controller manages details of line control and the routing of data over the communication lines.

The *Configure Hardware* dialog supports the configuration of **SNA** devices that are attached at the IBM 3720, 3725 or 3745. As part of the dialog, you are being guided into the generation of the Network Control Program (NCP). And, as with ICA attachments, the dialog lets you define links, physical units, and logical units. Refer to Chapter 2, “Configuring a Communications Device” on page 37.

Remote Non-SNA, 37xx-Attached

As mentioned before, over BSC lines **VTAM** supports only 3270 terminals. When used with the IBM licensed program *X.25 NCP Packet Switching Interface* (NPSI), an NCP enables VTAM to communicate with certain non-3270 non-SNA terminals.

The VSE/ESA **dialogs** do not support the configuration of **NCP-controlled** non-SNA devices. You must code the NCP definition statements yourself. For some additional information, see “NCP-Controlled Devices” on page 133.

Naming Convention in Hardware Configuration Dialog

The Hardware Configuration dialog supports only a single-domain network.

The dialog assigns VTAM resource names according to some naming convention.

The resource names allow to encode information within eight characters. Part of the resource name is the **subarea number**. This scheme achieves the **uniqueness of resource names**, even in multi-domain networks.

The naming convention comes in two varieties, distinguished by the length of the subarea number, and consequently by the maximum size of the subarea number.

1. Two-digit subarea number

This naming convention accommodates a maximum of 255 subareas.

Prior to VSE/SP Version 4, this was the only available naming convention. It is sometimes called *old naming convention*.

You must use the 2-digit naming convention if you want to migrate your hardware and terminal definitions from a VSE system that uses the 2-digit naming convention: you cannot *change* a naming convention during a migration. If you **do not migrate**, you are *strongly recommended* to use the 4-digit naming convention.

2. Four-digit subarea number

This naming convention accommodates more than 255 subareas. It is a prerequisite for *extended subarea addressing*.

This convention is not compatible with the old naming convention. **You cannot migrate into the 4-digit subarea naming convention** a configuration that you had used in VSE/SP Version 2 or Version 3. On the other hand, if you intend to use *automatic customization* in an unattended node environment, you must use this new naming convention.

For a detailed description of the naming convention refer to Appendix A, "Naming Convention" on page 221.

Most examples in this publication are based on the 4-digit subarea naming convention.

Defining Terminals to CICS

You define terminals to the CICS Transaction Server in either of two ways:

1. Permanently installed
2. Autoinstall.

This section briefly describes the two methods for defining Terminal Control entries under VSE/ESA 2.4.

Permanently Installed Terminals

Based on your input, the Hardware Configuration dialog passes the following definitions to the CICS Transaction Server:

- Terminal definitions which describe the characteristics of a particular terminal (DEFINE TERMINAL statements).

Every DEFINE TERMINAL statement refers to a

- Terminal type definition which describes the characteristics of a generalized terminal (DEFINE TYPETERM statement).

The dialog instructs the CICS Transaction Server to place the Terminal Control definitions in any of the groups VSETERM1, VSETERM2 and/or VSETERM3 in the CSD file.

VSE/ESA is delivered to you with predefined TYPETERMs in the CSD group VSETYPE. You can modify or add to these terminal type definitions using CEDA commands. CEDA is the transaction ID for CICS's Resource Definition Online (RDO). It is described in the IBM manual *CICS Resource Definition Guide* SC33-0708 .

Autoinstall Terminals

You may bypass the creation of permanent CSD entries by using the *autoinstall* facility of the CICS Transaction Server, which creates Terminal Control entries in the CICS system only when the device is actually needed.

Besides saving you time in updating and assembling tables, this may also mean that the CICS Transaction Server takes up less virtual storage. Terminal Control entries created in this way exist in the CICS system only while the terminal remains in session.

Hardware Configuration Overview

To make use of the autoinstall facility, a terminal must be defined to VTAM. When a user signs on from a terminal that is defined to VTAM but unknown to the CICS Transaction Server (no Terminal Control entry), the autoinstall facility is activated. It provides the CICS Transaction Server with VTAM, TYPETERM, and TERMINAL information. The CICS Transaction Server then creates a Terminal Control entry for the terminal in the CICS system ("automatic installation"). The Terminal Control entry remains activated as long as a CICS session is active for that terminal.

Notes:

1. You do *not* need to have a separate TERMINAL definition for each autoinstall terminal. In fact, you may need as few as one per device type. This is known as *model definition*, which is discussed below.
2. You should not use the autoinstall facility for defining printers, because the printer must be installed *before* the first terminal user attempts to use the printer.
3. The CICS Transaction Server has a limit for the number of autoinstall terminals that can be activated at the same time. You are able to set this limit via the AUTOINST operand of table DFHSITSP. The default value is 100.
4. Under VSE/ESA 2.4, you can also use the autoinstall facility to define APPC parallel sessions in the CICS system. Refer to the IBM manual *CICS TS Customization Guide* SC33-1652, for details.

Model Definitions:

For an autoinstall terminal the DEFINE TERMINAL statement will indicate

1. that it is for an autoinstall terminal (parameter AUTINSTMODEL)
2. the name of a model DEFINE TERMINAL statement, which in turn refers to a model DEFINE TYPETERM statement.

To ensure that the autoinstall facility works with the VSE/ESA Interactive Interface, VSE/ESA provides its own TYPETERM and TERMINAL model definitions. The model definitions are shipped as a phase in the system library IJSYSRS.SYSLIB. During VSE/ESA installation they are added to the CICS System Definition (CSD) file as groups VSETYPE and VSETERM.

The model definitions provided by VSE/ESA are listed in Appendix C, "VSE/ESA Definitions for Autoinstall Terminals" on page 247.

If you wish, you can use the model definitions as is, or change them, or provide your own definitions. You change model definitions with CEDA commands.

Tables for VTAM Model Terminal Support:

After you define an autoinstall terminal in the *Configure Hardware* dialog, an entry is built in the VTAM model terminal support table (MDLTAB macro). This entry carries the name of the terminal's model definition which derives from your AUTOINST MODEL specification in the dialog.

In addition, if in the dialog you entered a value for **PRINTTO** (the associated printer), an entry is built in the VTAM associated logical unit table (ASLTAB macro).

This entry carries in the PRINTER1 parameter the term ID of the associated printer and optionally in the PRINTER2 parameter the **TERM ID (CICS)**.

Both tables are built in library 51, under the names VTMMDL and VTMASL. During VTAM startup the tables are cataloged as B books into sublibrary PRD2.CONFIG.

VTAM Parameters and Logon Mode Table:

The VTAM logon mode table (IESINCLM) contains an entry for each model definition provided by VSE/ESA. When defining your terminals with the *Configure Hardware* dialog to VTAM, the following parameters are created:

- MODTAB

This parameter identifies logon mode table IESINCLM.

- DLOGMOD

Connects the terminal type to the correct entry in IESINCLM.

Both parameters are included in the VTAM source books which the dialog generates. You can modify both parameters via the *Hardware Configuration: VTAM Parm Table List* panel of the *Configure Hardware* dialog.

Note: If you change the DLOGMOD parameter, keep in mind that the parameter value is identical to the label of the corresponding entry in IESINCLM.

Multiple-Domain Configuration

So far this overview has covered the single domain. The following section is a brief preview of what a later chapter will present for the multiple-domain case.

In a multiple-domain network, two or more hosts are connected via **SDLC lines**, via the **IBM token ring**, via an **X.25 Packet-Switched Data Network**, or via **channel-to-channel adapters**. VSE/ESA can be

- A *peer* to another system, for example another VSE/ESA
- A subordinate system to a central host, for example an OS/390 or a VM system

The hosts can be connected as two subarea nodes, two APPN nodes, or as one subarea and one APPN node.

Before you make a single domain a part of a multiple-domain network, you must add a few more definitions than are necessary for a single domain. Examples are *cross-domain resource managers* and *VSE/POWER PNET node names* (if you plan on using VSE/POWER PNET). Resources defined in one domain **must be known in the other domain(s)**.

For subarea nodes (as opposed to APPN nodes), VSE/ESA has a facility which helps you in supplying these cross-domain definitions: the *network definition skeleton* (member SKDTRNET in the system sublibrary IJSYSRS.SYSLIB). See Chapter 4, "Configuring a Multiple-Domain Network" on page 135. Part of that chapter is a complete example of an ICA-to-ICA multiple-domain configuration.

The network definition skeleton SKDTRNET specifically defines either an **integrated communication adapter** (ICA or TSC or TRA) connection or a channel-to-channel (CTCA) connection to another domain. VSE/ESA has no equivalent tool for an **NCP** connection. You define the NCP connection *manually*.

Networking Functions with VSE/ESA

To help you with this task, the multiple-domain chapter presents a simple example of an NCP-to-NCP definition. See “Example NCP-to-NCP Configuration” on page 174.

From the network skeleton a *network tape* will be created. Two VSE/ESA dialogs help you in working with the network tape:

- Creating the network tape

After you defined the network via the network skeleton, you can create a tape containing the network definitions for the interconnected systems. To actually create a tape, use the dialog described in “Creating a Network Tape” on page 138.

- Installing the network tape

If you receive a network tape from the host system administrator, you can install it using the appropriate dialog (see “Installing a Network Tape” on page 139). Additional tasks may be necessary to tailor the subhost definitions to the needs of the overall network.

Networking Functions with VSE/ESA

With VSE/ESA you can make use of a variety of networking functions. These include:

- Remote operation of an interconnected system
- Controlling and monitoring your network with NetView
- Exchange of data (including jobs) between interconnected systems
- CICS Transaction Server *Intersystem Communication* (ISC)
- Unattended Operation of Remote Nodes.

They are discussed in the following sections. The discussion primarily has subarea networks in mind. Most of the functions listed above are also available in an APPN network, although not specifically described here.

Remote Operation of an Interconnected System

The system console of any interconnected system may be accessed for **cross-domain logon**.

This is a logon to applications on the other system. The applications can be CICS applications or other VTAM applications. They must be defined as cross-domain resources. A network skeleton provided with VSE/ESA makes the definitions for these cross-domain applications easier.

Through cross-domain logon, you can dedicate a terminal of one system for remote operation of the other's system console. The *remote operator* function is part of your VSE/ESA. It works in a single domain as well as cross-domain.

On the remote operator terminal, you can

- Display the current content of the system console.
- Send commands to VSE/ESA if authorized.
- Scroll through the hardcopy file.

- Access the online message file which is a copy of all messages documented in the IBM manual *VSE/ESA Messages and Codes*.

You can use this function, for example, to run a system or to monitor the execution of a program. Any commands entered are displayed on the system console and on the remote operator console. No special definitions are necessary to use this function.

For details, see “Remote Operating of System Console” on page 210 and the IBM manual *VSE/ESA Operation SC33-6706*.

Controlling and Monitoring a Network (NetView)

NetView is a *VSE/ESA optional program* which provides a comprehensive set of network management functions.

The NetView program is **one** product and requires only **one** process of installing as VSE/ESA optional program.

The NetView functions merged from the above three products have to do with:

- **Operation**

NetView offers an alternative to controlling the network through the system console. With NetView, several operators at NetView terminals can oversee and control the network.

You can write *NetView command lists* (CLISTs) to **simplify** repetitive or complex operating procedures.

NetView command lists can also be written to **automate** operating procedures.

NetView command lists (IBM-supplied and your own) play an important part in a VSE/ESA unattended nodes environment. You find an overview of the VSE/ESA Unattended Node Support in section “Unattended Operation of Remote Nodes” on page 26.

- **Session data**

NetView collects, correlates and stores **session and problem** information for online user access.

- **Hardware problems**

NetView collects and processes hardware error information and helps in isolating such errors.

NetView also provides new functions beyond those previously available from the separate products, including:

- **Status Monitor**

NetView's status monitor provides a simple way for network operators to control an VTAM network. It displays summaries of the network by resource type (such as lines or applications) and current state.

Command selection menus allow the selection of VTAM commands or NetView CLISTs, along with resource names.

The status monitor can also automatically reactivate failing resources, such as communication lines.

Networking Functions with VSE/ESA

- Browse Function

From NetView, the operator can browse **library members** and the network log. This allows the operator to view VTAM major nodes, NCP source code, NetView definitions, and a log of all operator commands and messages.

- Automated message processing

NetView provides the capability to invoke a NetView CLIST or command processor **based on any operator message**. Note that a command list can be written in REXX. The support permits the specification of criteria which must be satisfied before a specified CLIST or command processor will be initiated. The criteria may include the presence of specific message text data, job identification or other message attributes.

- Automated Operation

NetView allows commands to be run as **automatic response** to messages even without any operators logged on. With this support, NetView can run whether or not VTAM is currently active and can even be used to automatically start or restart VTAM.

Note: You can also use *REXX Console Automation* to automate your console for daily activities. Refer to the *VSE/REXX Reference* SC33-6642, for details.

- Generic Alert

Generic alerts consist of *multiple code points* which an application sends to the host.

A code point is a number that indexes into a table of text strings. A code point **represents** a particular string of text (a descriptive phrase containing problem information or recommended actions). The host uses the code points to dynamically display the text strings on panels.

- Session monitoring in support of SNA type 2.1 nodes

NetView provides session support for primary logical units (PLUs) that are not in the VTAM host.

NetView is a *VTAM application* and therefore needs to be defined to VTAM. Refer to "Application Major Node" on page 197 and also to the IBM manual *VTAM Network Implementation Guide* SC31-6494 .

Exchange of Data between Interconnected Systems

With VSE/ESA, three programs are available which facilitate the exchange of data between interconnected systems. Each one of these has its own unique applicability.

1. VSE/DSNX - as counterpart of the program *NetView Distribution Manager* which supervises the central (host) control of programs and files at VSE nodes in a distributed data processing network.
2. VSE/POWER (generated with PNET support) - for the exchange of smaller, mostly system-related files.
3. NetView FTP - for the exchange of larger data files.

VSE/POWER is a base program of VSE/ESA. VSE/DSNX and NetView FTP are VSE/ESA *optional programs*. You can also use TCP/IP FTP to transfer data between different systems.

The following sections briefly describe each of those programs.

VSE/DSNX

IBM Virtual Storage Extended / Distributed Systems Node Executive (VSE/DSNX) is an IBM program which must be installed at a VSE node in a distributed system with NetView DM at the central host. You must always think of VSE/DSNX as the counterpart of NetView DM.

IBM NetView Distribution Manager (NetView DM) provides services for central management and control of software and data distribution in a **Distributed Data Processing (DDP) network**.

Both NetView DM and VSE/DSNX are VTAM applications. They are cross-domain resources in a multiple-domain network. NetView DM runs under control of OS/390 or VM, VSE/DSNX under control of VSE.

The DDP network consists of:

- A central site (where NetView DM runs),
referred to as *host*.
- Distributed sites,
referred to as *nodes* (one example among these nodes is the *VSE node*).

NetView DM can be used in three main areas:

- Distributed application management
- Change management
- Problem management.

NetView DM communicates with the counterpart programs at the nodes.

One such counterpart program is VSE/DSNX, specialized for VSE nodes. VSE/DSNX ensures that NetView DM's requests for data transfer and file or library handling are processed properly at the VSE node.

In a NetView DM-to-VSE/DSNX connection, the following functions can be performed immediately or in a pre-scheduled manner:

- Sending (to the VSE node, or to a group of nodes, or to all nodes)
- Retrieving (from the VSE node)
- Deleting (at the VSE node) of VSE/VSAM files and VSE library objects.
- Sending VSE/POWER jobs to the VSE node to be run there.

VSE/DSNX offers these primary benefits:

- The ability to maintain and upgrade system **software** and user applications at VSE nodes. There may be one VSE service or development processor from where new or changed software is distributed to all the other VSE nodes via NetView DM.

Networking Functions with VSE/ESA

- The distribution of **data** between host and VSE nodes, or between VSE nodes via the NetView DM host.
- **Automatic execution** of network jobs.
- Tracking of distributed data and application resources.

For more information on VSE/DSNX refer to the IBM manual *VSE/DSNX Planning, Installation, and Operation* order number SC33-6396.

VSE/POWER Networking (PNET)

VSE/POWER PNET lets you communicate with other VSE systems that have VSE/POWER PNET installed. VSE/POWER PNET also communicates with systems managed by VM RSCS or OS/390 with JES2 or JES3.

The networking capabilities of VSE/POWER PNET let you transfer output files and jobs to other systems to be run there. You can route the output of jobs to the same or to a different system.

If you need the VSE/POWER PNET capabilities in your system, you must replace the pregenerated VSE/POWER component in VSE/ESA by one that includes PNET. VSE/ESA provides the skeleton SKPWGEN for you to generate the VSE/POWER options you need (for the content of the skeleton refer to “VSE/POWER Generation Skeleton SKPWGEN” on page 227). In the skeleton, insert the PNET= operand as part of the POWER macro definitions.

After completing the definition of the VSE/POWER PNET nodes and regenerating VSE/POWER, you can use the dialogs to:

- Submit jobs to interconnected systems (see “Submitting Jobs to Other Systems” on page 210).
- Create job streams to transfer or retrieve VSE/VSAM files and VSE/ICCF library members across interconnected systems. See “Transferring/Retrieving Files to/from Other Systems” on page 212.

VSE/POWER PNET functions independently of VTAM. Therefore, a downtime of VTAM would not affect PNET's proper functioning.

NetView FTP

The IBM *NetView File Transfer Program* is a general-purpose program for transferring files (*data sets*) between any of the following

- VSE
- OS/390
- VSE running as a VM guest operating system
- OS/390 running as a VM guest operating system
- VM with Group Control System (GCS).
- OS/400
- AIX

Whereas VSE/DSNX (see above) operates on files **and library objects**, NetView FTP operates on files only. It supports VSE/VSAM files as well as files on IBM standard-label and unlabeled **tapes** of VSE-controlled processors.

NetView FTP allows different block sizes for the file sent and the file received. NetView FTP is flexible with regard to file types. You can transmit a file either from or to a different type of storage.

Like VSE/DSNX, NetView FTP is a VTAM application and as such uses SNA.

Contrary to a NetView DM-to-VSE/DSNX connection, NetView FTP works in a peer-to-peer connection (with two copies of NetView FTP at either end). NetView DM functions are always requested at the host location. On the other hand, *NetView FTP input streams* for both the sending and receiving location can be built at either the sending or the receiving location, or at a different location.

For a description of NetView FTP, refer to the IBM manual *NetView File Transfer Program, General Information* order number GH12-5480.

CICS Transaction Server Intercommunication

There are two ways in which CICS Transaction Server can communicate with other systems:

- Multiregion Operation (MRO)
- Intersystem Communication (ISC)

For communication between systems that are in different hosts, you require an SNA access method, such as VTAM, to provide the necessary communication protocols. Communication between systems via SNA is called *intersystem communication* (ISC).

For CICS-to-CICS communication in the same host, CICS Transaction Server provides an interregion communication that is **independent of the SNA method**. This form of communication is called *multiregion operation* (MRO). It is not discussed any further in this publication. The remainder of this section is devoted to ISC.

ISC within a single processor (intrahost ISC) is possible via the application-to-application facilities of VTAM. In a VSE system, you can use intrahost ISC for communication between two or more CICS Transaction Server systems.

ISC Protocols

The SNA protocols that CICS Transaction Server uses for intersystem communication are those of

- Logical Unit Type 6 (otherwise known as LUTYPE6.1), and of
- *Advanced Program to Program Communication* (APPC, which uses the LUTYPE6.2 protocol).

Accordingly, CICS Transaction Server supports two types of sessions: LUTYPE6.1 sessions and LUTYPE6.2 sessions.

LUTYPE6.1 sessions are supported by CICS and IMS/VS, and can be used for CICS-to-CICS and CICS-to-IMS/VS communication.

Like LUTYPE6.1 sessions, LUTYPE6.2 sessions can be used for data communication between transaction processing systems. However, LUTYPE6.2 provides an architecture within which not only host- or system-level products, but

Networking Functions with VSE/ESA

also device-level products (LUTYPE6.2 terminals, for example an application program in an AS/400) can communicate.

LUTYPE6.2 sessions can be used for CICS-to-CICS communication, and for communication between CICS and other LUTYPE6.2 systems or terminals.

Note: You are recommended to use LUTYPE6.2 for CICS-to-CICS communication.

Intercommunication Facilities

In the multi-system environment, each participating system can have its own, local, terminals and data bases, and can run its local application programs independently of other systems in the network. In addition, it can establish links to other systems, and thereby gain access to remote resources. This mechanism enables resources to be distributed among and shared by the participating systems.

ISC with VSE/ESA

ISC is not explicitly dialog-supported in VSE/ESA.

The network skeleton SKDTRNET provides a slot for ISC system entries for Terminal Control definitions. Section "CICS2 - ISC Terminal Control Entries" on page 160 contains an example of ISC Terminal Control definitions.

Applications across systems must be defined as cross-domain resources when you set up your network. The network skeleton SKDTRNET has a section which helps you do that.

Unattended Operation of Remote Nodes

The VSE/ESA Unattended Node Support provides the software base for an SNA network that contains the following three elements:

1. A *host* system running under OS/390.
2. A *service node* running under VSE/ESA. It is connected to the host via VTAM.
3. *Unattended nodes* running under VSE/ESA. They are connected to the host via VTAM.

Figure 8 shows the general structure of a network of unattended nodes. The VSE/ESA Unattended Node Support is documented in detail in the IBM manual *VSE/ESA Unattended Node Support* SC33-6712 .

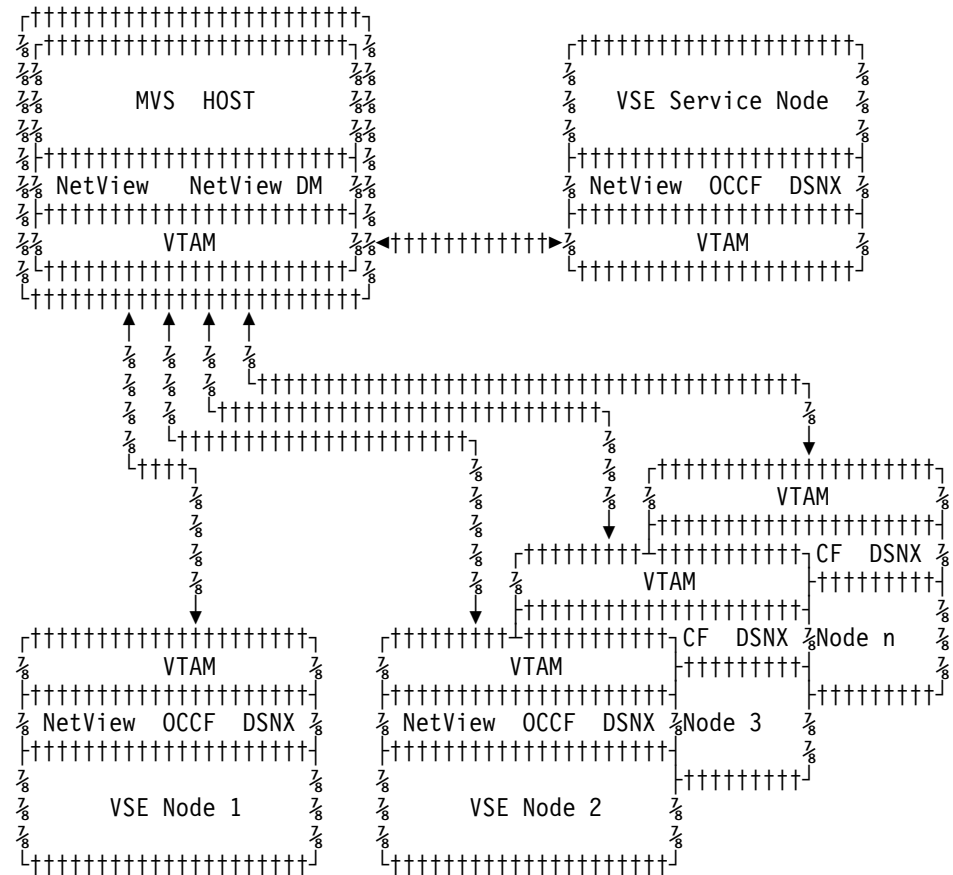


Figure 8. Network of Unattended Nodes (Conceptually)

The Host

The host is used as

1. Focal point for network management.
2. Residence of central software such as NetView DM.
3. Central point of **service** distribution: it receives from the service node a piece of corrective service (PTF) and sends it to the unattended nodes.

The Service Node

The service node in most cases is located somewhat close to the host.

It is a VSE/ESA system which is used for installation, problem determination, and service.

It is a superset of the unattended nodes, both in terms of hardware configuration and of installed software. The configured hardware need not be physically in place. It just has to be **configured** in the software system.

The Unattended Nodes

They are most likely located at a remote site, therefore also called *remote nodes*.

A system operator is not required. This is achieved by:

- Suppression of informational messages
- Handling of messages by the system
- Date/timer controlled job scheduling
- In exceptional error situations: routing of messages to the host (that is, to the NetView central operator)
- Automatic system/subsystem restart
- Support for automatic CICS Transaction Server or system shutdown.

The following sections briefly describe the main activities in an Unattended Node Environment.

Installation

VSE/ESA is first installed at the service node. This will be a *service VSE/ESA*.

Installation is done in the "normal fashion":

1. VSE/ESA initial installation.
2. Optional programs NetView, VSE/OCCF, VSE/DSNX, DB2. If required, any other optional programs.

The service VSE/ESA is tailored to be either identical to all node systems, or it forms a superset of the node systems.

Prior to distribution (see the next section), some preparatory work needs to be done for the *customization* of the unattended nodes. The most important part is the creation of the *customization table*. This table maps, per unattended node, CPU-id into node criteria.

Distribution

After installation is completed, a **Fastcopy Dump Volume** to tape is performed at the service node. The tape is the distribution medium for system distribution to the various nodes.

In addition, a tape containing the *Device Support Facilities* (DSF) and the stand-alone utilities is part of the distribution package.

At each "unattended" node, IPL from that tape is performed.

At each "unattended" node,

A second IPL from tape, and then
Fastcopy Restore

is performed.

These nodes, now being identical to the service VSE/ESA, will be made unique in the following step.

Customization

After the first IPL (from disk), the system automatically goes through a customization step. Network relevant names, **which must not be ambiguous, are made unique** by using the customization table. To become properly customized, these names must follow the 4-digit subarea naming convention (which was introduced in section “Naming Convention in Hardware Configuration Dialog” on page 16).

A batch job automatically updates VTAM, CICS and NetView tables, plus the VSE/POWER Network Definition Table (NDT) and the IPL procedure if properly specified in the customization table. When customization is complete, an **automatic** re-IPL is performed which brings up the final Unattended Node system ready to run.

Daily Work

The unattended node can run continuously. A daily IPL is, therefore, not required. If in an exceptional situation an IPL is necessary, it can be done remotely from the host or at the node via *AUTO OPERATION* of the processor.

Normal job processing is controlled from the host, mainly through remote submission of VSE/POWER jobs which can be scheduled date and timer controlled.

Error Recovery

Automatic IPL: To provide a high level of availability, the unattended node has an alternate IPL device (SYSRES). The alternate SYSRES contains the following products:

- SYSLIB products
- CICS
- VTAM
- VSE/OCCF
- NetView
- VSE/DSNX

In case of a system breakdown, several automatic IPLs (up to a given limit) will be performed from the *primary SYSRES*. If the limit is exhausted and the error occurs again, one more IPL will be tried from the *alternate SYSRES*.

Automatic Restart of Subsystems: NetView commandlists (CLISTs) examine messages and take appropriate actions. **Based on messages**, NetView CLISTs monitor and **restart**

- CICS/ICCF
- VSE/DSNX
- DB2
- Security Server, for the Basic Security Manager running in the FB partition

Problem Determination: There is hardly anything special about problem determination in an unattended node environment. The central NetView operator logs on to the Interactive Interface of the failing node and uses the normal VSE/ESA problem determination facilities.

Central personnel may also consider reproducing the problem at the service node and, at this node, applying the normal VSE/ESA problem determination facilities.

Requirements

Service

At the unattended node, there is no installing of PTFs **from tape**. Service application runs under control of NetView DM and VSE/DSNX and does not require manual intervention at the node.

PTFs are applied and tested centrally at the service node and then distributed to the remote nodes via NetView DM and VSE/DSNX.

At the service node, the PTFs to be distributed are copied from tape to a SAM file in VSAM managed space by means of an MSHP utility. The file is then distributed to the nodes. This is the same file that is used for applying PTFs from disk.

Networking Requirements

Hardware Considerations

Supported Communication Devices

For a complete list of supported communication devices refer to the IBM manual *VSE/ESA Planning SC33-6603*.

IBM OSA-2 Adapter

You must *customize* the IBM OSA-2 adapter before you can use it. The Open Systems Adapter Support Facility (OSA/SF) is a program you use for customizing and managing your OSA-2 Adapter. It resides on the server (host). You can communicate with OSA/SF either from:

- *An OS/2 workstation.* Using OS/2 from a workstation, the interface that you set up is referred to as the OSA/SF GUI. There are windows, icons, pull-downs, push-button, and online help.
- *JCL that uses OSA/SF commands.* All of the tasks done from the OSA/SF GUI can also be done using JCL.

For details of how to customize your OSA-2 Adapter, refer to the IBM publication *VSE/ESA Open Systems Adapter Support Facility User's Guide*, SC28-1946.

IBM 3172 Interconnect Controller

You must *customize* your IBM 3172 Interconnect Controller before you can use it. A utility program (the Operator Facility) is provided that runs under OS/2, and which you use for this purpose. The result is a diskette which remains in the Interconnect Controller, and which is used during IPL.

For details of how to customize your 3172 Interconnect Controller, refer to the IBM publication *Using the 3172 Operator Facility User's Guide*, SC30-3573.

IBM 3274/3174 Control Unit

You must *customize* local and remote IBM 3274/3174 control units before you can use them. This is done off-line by responding to a series of questions presented on the screen which is attached to port 0 of the control unit. The result is a diskette which remains in the control unit. When the unit is powered on, the microcode is loaded from the diskette. For details see the IBM publication *3174 Subsystem Control Unit Customization Guide*, order number GA23-0214.

Integrated Communication Adapter

If your processor has an Integrated Communication Adapter (ICA), such as the Telecommunications Subsystem Controller (TSC) of the IBM ES/9221, a configuration table is included on the system diskette. It contains descriptive entries for each installed link. Certain link parameters can be set or changed either temporarily or permanently.

Required Software

There are not very many special software requirements for the communications part of your system because the three prerequisite programs:

- VTAM
- CICS
- VSE/POWER

are base programs of your VSE/ESA as delivered to you.

Special requirements arise in these areas:

- SNA support in VSE/POWER.
- Communication controller IBM 37xx.
- X.25 Network connection.
- Network Management.

They are discussed in the following.

Remote VSE/POWER Stations

The configuration of remote VSE/POWER stations is included in the Hardware Configuration dialog, for example the IBM 3770 Data Communication System.

In addition to the definitions that you give in the dialog, you must generate SNA support in your VSE/POWER by filling out and submitting the job that is given in the skeleton SKPWGEN. The skeleton is a member in library 59; see also Figure 112 on page 227 for the content of the member. Part of the content are instructions on how to fill out the skeleton.

The job performs a generation of VSE/POWER. Be sure to include the member SKPWRSNA, also in library 59. You include the member by removing the '*' from the statement

```
*/INCLUDE SKPWRSNA
```

Do not modify SKPWRSNA.

IBM 37xx Communication Controller Support

Each communication controller needs a control program the type of which depends on the line protocol. **NCP** supports SNA devices over SDLC lines. Among the set of non-SNA devices, it supports only IBM 3270s.

You need NCP 4.3 for the IBM 3725.

You need NCP 5.4 for the IBM 3720, plus possibly one of the NCP *usage tiers* 2 to 5.

Requirements

You need NCP 7.7 for the IBM 3745.

Along with any of these NCP releases, you need **ACF/SSP for VSE 4.7**. You can use ACF/SSP 4.7 with *all* the NCP releases mentioned here.

The above programs, that is: NCP, its usage tiers, and ACF/SSP, are all installable as VSE/ESA *optional programs*.

X.25 Communication Adapter Support

If you attach remote devices via a Packet-Switched Data Network (PSDN) at an integrated communication adapter (ICA or TSC), you need the **X.25 Communication Adapter Support**, which is part of your VTAM.

If the device is attached via a PSDN at a communication controller (as opposed to an ICA), you must augment your NCP definition by *X.25 NCP Packet Switching Interface* (NPSI) statements. X.25 NPSI is an optional program of VSE/ESA.

Network Management

The **NetView** program provides a comprehensive set of network management functions. It is installable as an optional program of VSE/ESA.

A general description of this program has already been given in section “Controlling and Monitoring a Network (NetView)” on page 21.

Activities in a Multiple Domain

Once a multiple domain (in a subarea network) has been established, the following activities can be carried out:

1. Accessing, in one domain, applications in the other domain. This activity is called *Cross-domain application communication*.
2. Requesting, from one domain, the execution of jobs in the other domain, and transferring data between the two domains. This activity is called *Job Networking*.

The software requirements are the following:

Cross-Domain Application Communication

Communication is over SDLC lines, and the other domain has one of the following products installed:

1. VSE/ESA (and NCP if you have an IBM 37xx communication controller)
2. VTAM (plus NCP if you have an IBM 37xx communication controller) under another operating system.

Job Networking Connections (SDLC)

to other processors with SNA functions are possible via **SDLC lines** if the other processor has **one** of the following software environments:

1. VSE/ESA
2. VSE/Advanced Functions 2.1 or later **and** associated releases of
 - VSE/POWER
 - VTAM
 - NCP if you have an IBM 37xx communication controller

3. MVS/SP JES2 Release 3 or later **and** associated releases of
 - VTAM
 - NCP if you have an IBM 37xx communication controller.

Note: Refer to the IBM manual *VSE/POWER Networking* SC33-6735, for details of the supported release levels of VSE and OS/390 systems that you can attach via SDLC.

Job Networking Connections (BSC)

to other processors via **BSC lines** are possible if the other processor has **one** of the following software environments:

1. VSE/ESA
2. VSE/Advanced Functions 2.1 or later, with the associated release of VSE/POWER.
3. MVS/SP JES2 Release 3 or later **or** MVS/SP JES3 Release 3.1 or later
4. VM/SP Remote Spooling Communications Subsystem (RSCS) Release 2 or later.

Note: Refer to the IBM manual *VSE/POWER Networking* SC33-6735, for details of the supported release levels of VSE and OS/390 systems that you can attach via BSC.

Job Networking Connections (CTCA)

For a connection of a VSE/ESA system to another processor via **channel-to-channel adapter (CTCA)** or **virtual CTCA** if running under VM, the same conditions hold as for a connection over SDLC lines.

VTAM Requirements

For VTAM under VSE/ESA, requirements arise in the following areas:

- Buffer pool allocations
- Data space allocation
- Data collections for APPN network implementation
- Password tailoring.

VTAM Buffer Pool Allocations

VTAM buffer pools are used to control transmission of data between VTAM and nodes. They are also used for internal control blocks.

Buffer pool allocations are given in the VTAM startup options list ATCSTRxx.B in library PRD2.CONFIG. An excerpt from the IBM-supplied default list ATCSTR00.B is shown in Figure 9 on page 34.

Requirements

BSBUF=(28,,,1),	*
CRPLBUF=(60,,,1),	*
LFBUF=(70,,,11),	*
IOBUF=(70,288,,,11),	*
LPBUF=(12,,,6),	*
SFBUF=(20,,,20),	*
SPBUF=(210,,,32),	*
XDBUF=(6,,,1)	

Figure 9. VTAM Buffer Pool Allocations in ATCSTR00.B

For more details, see the IBM manual *VTAM Resource Definition Reference*, SC31-6498.

Data Space Allocation

VTAM uses data space storage. To define data spaces, you use the DSIZE and DFSIZE operands of the VSE system control statement SYSDEF (for the complete syntax refer to the IBM manual *VSE/ESA System Control Statements* SC33-6613). The DSIZE operand of the SYSDEF statement defines the **total amount** of virtual storage that can be allocated for data spaces within the entire system.

When determining a DSIZE value, be aware that VTAM always requires one 1 MB data space for initialization. In addition, for each partition where a VTAM application program is running, VTAM requires an additional 1 MB data space. For example, if you have CICS running in a partition, VTAM requires one 1 MB data space to support CICS sessions, plus the additional 1 MB data space for VTAM initialization, for a total VTAM data space requirement of 2 MB. If you have a VTAM user-written application program running in another partition, VTAM will require another 1 MB data space to support that application program's sessions, now bringing the total VTAM data space requirement to 3 MB.

To define the maximum allowed size for VTAM application programs, you use one of the following:

- The DSPACE operand of the JCL statement EXEC for the VTAM application program
- The DFSIZE operand of the VSE system control statement SYSDEF.

The DFSIZE value is a global system value and is used for each application program that needs data space storage. You can override this value for VTAM application programs by specifying a different value in the DSPACE operand for those VTAM application programs.

The VTAM startup job that is delivered as part of your VSE/ESA system specifies DSPACE=2M. Please refer also to the

```
// EXEC ISTINCVT, ... ,DSPACE=2M
```

statement in skeleton SKVTAM which is shown in Figure 107 on page 204.

The above value is regarded as sufficient for a majority of VSE/ESA installations. In exceptional cases, you may have to increase the DSPACE value.

Data for APPN Network Implementation

To implement an APPN network under VSE/ESA, you must supply a few data collections:

- A class-of-service (COS) table, similar to the logon mode table in a subarea network
- VSE/VSAM files for directory data.

For details refer to section Chapter 5, “Connecting Two VSE/ESA Hosts in an APPN Network - An Example” on page 183. In that section, you find a simple example of two network nodes (VSE/ESA systems) connected in an APPN network.

Password Tailoring

With VSE/ESA Version 2, you receive VTAM Version 4 Release 2. VTAM consists of three different levels:

- VTAM Client/Server
- VTAM MultiDomain
- VTAM InterEnterprise

VTAM Client/Server is designed for client/server networks that require basic APPN and subarea support. **VTAM MultiDomain** includes the functions available in VTAM Client/Server along with additional APPN and subarea functions, such as the capability to own an NCP. **VTAM InterEnterprise** includes the functions available in VTAM Client/Server and VTAM MultiDomain along with the APPN and subarea functions that are required in an interconnected network.

When you ordered VTAM, you had to specify one of the three levels. With the VSE/ESA distribution cartridge(s) or tapes, you also receive a unique VTAM password customized for your site.

For initial installation, VSE/ESA uses a predefined password and no action on your side is necessary. However, when initial installation is complete and you tailor your system, you must activate your own VTAM customer number and password, by modifying skeleton SKVTAM. This skeleton is stored in VSE/ICCF library 59.

- Copy the skeleton into your primary VSE/ICCF library.
- Use the copy of the skeleton to modify the VTAM password.
- Submit the skeleton for processing.

The skeleton is shown in Figure 107 on page 204.

For overview information and technical details, refer to the IBM manuals *VTAM Overview*, GC31-8114 and *VTAM Network Implementation Guide* SC31-6494 .

Considerations for using BTAM

Although the use of BTAM is not recommended for use with VSE/ESA 2.4, you can install it from the Extended Base Tape. If you decide to continue using BTAM (and not VTAM), you should be aware that:

- The installation of VSE/ESA 2.4 with BTAM as the access method, is not supported.

Requirements

- There is *no support* provided for migrating systems with BTAM as the access method, in the Interactive Interface.
- The CICS Transaction Server cannot be used with devices that use BTAM. In addition to installing the CICS Transaction Server, you must also install CICS/VSE 2.3 if you want to use BTAM.
- If you need to use BTAM, you can install it as an optional product.
- You must create all device definitions for using BTAM, yourself.
- You should use BTAM only if you cannot use VTAM (since VTAM covers most of the devices that BTAM supports).

For further information on how to use BTAM within your configuration, refer to *VSE/ESA Planning*, SC33-6703 .

Chapter 2. Configuring a Communications Device

During initial installation of VSE/ESA, you completed hardware configuration after signing on with the POST user ID. This is described in detail in the IBM manual *VSE/ESA Installation SC33-6604*.

Later on, you can add, change, or delete devices on your system at any time. You use the *Configure Hardware* dialog to add or delete hardware addresses and to specify device characteristics.

This chapter describes how to use the dialog to configure your **telecommunication** devices. This configuration includes

- **SNA** as well as **non-SNA** devices,
- **local** as well as **remote** devices.

The dialog produces several types of objects which the startup job will use to determine your hardware configuration. These objects fall into the following categories:

- IPL procedure
- VTAM books
- Terminal Control entries in the CICS Transaction Server *System Definition File* (CSD).
- NCP generation jobs and NCP books

Only for subarea networks !

The dialog produces definitions that are only valid for **subarea networks**. For APPN networks, you have to make the required definitions manually.

As was outlined in the preceding chapter, the Hardware Configuration dialog leads you through the following tasks:

- Defining the devices in the **Unit Address List**
- For remote devices: defining the **link**
- Defining the **Physical Unit** (PU)
- Defining the **Logical Unit** (LU).

This chapter is organized around these tasks. While this chapter addresses the above major topics, the following Chapter 3, "Special Configuration Tasks" on page 123 describes some additional configuration aspects.

You would need this option if you wanted to declare a local non-SNA terminal as working in burst mode. In the case of an IBM 3277, for example, you would attach a 'B' to the device number to get a device type code of 3277B.

3 = SELECT FOR FURTHER PROCESSING

Select option 3 if you want to change or add device characteristics other than Device Type Code or Device Specification (Mode).

With this option, you continue the sequence of configuration tasks such as link definition or physical unit definition.

4 = LIST SIMILAR DEVICES

Select option 4 to have only devices displayed that belong to a particular group, for example all local non-SNA devices.

5 = DELETE A DEVICE

Select option 5 to delete an address (device) from the unit address list.

PF Keys:

5=PROCESS

Press PF5 when you have done all your changes using the available options, or PF6.

6=ADD ADDR

With PF6 you add a new address (device) to your hardware configuration. Depending on the type of device, several panels are displayed. You have to select the device you want to add to your installation and enter all device specific information required.

9=PRINT

Use PF9 to get a printout of the unit address list. The output is stored as library member **CONFLIST** in your VSE/ICCF primary library.

Adding the Unit Address

The Hardware Configuration dialog distinguishes between **local non-SNA** and (local and remote) **SNA** terminals. The dialog does not support remote non-SNA terminals.

During Initial Installation, the **VTAM** telecommunications access method is used at your installation for both non-SNA and SNA terminals. If, however, you must also use **BTAM-ES**, refer to the section "Considerations for using BTAM" on page 35 for information on how to do so.

A set of parameters defines the characteristics of each terminal. When you define a terminal via the *Configure Hardware* dialog, the system uses defaults for most of these parameters. They are shown to you after you reach the *Non-SNA Terminal List* or *SNA Logical Unit List* panels. You can then verify and, if necessary, change them. In addition, you can also view and verify the *VTAM Parameter Table List*.

Now, to add the unit address, in the panel *Hardware Configuration: Unit Address List*, press

PF6 (for ADD ADDR).

You receive the panel *Hardware Configuration: Add a Device* which asks you to specify two things:

Adding to the Unit Address List

1. One or several addresses
2. Device name.

Figure 11 shows an example of the panel.

ADM\$ADDR HARDWARE CONFIGURATION: ADD A DEVICE	
Specify the address or the address range of the selected device.	
STARTING ADDRESS..... ____	This may be the starting address of an address range or the only address to be added
END ADDRESS..... ____	This address specifies the upper limit of the address range to be added.
DEVICE NAME ____	The device you want to add or a "?" to get the group selection panel.
PF1=HELP 2=REDISPLAY 3=END	

Figure 11. Add a Device Panel

As you can see from the panel, the dialog allows you to specify a range of **contiguous addresses**. The devices must be of the same type, for example three IBM 3174-xxL at addresses 386 through 388.

The specification of an address serves to create a corresponding IPL ADD statement.

Notes:

1. For **one X.25 packet-switched** link (see "Defining an X.25 Packet-Switched Link" on page 53), **two** addresses are necessary, one address for the transmit address and another address for the receive address. You add the transmit address, the system suggests a receive address which is eight bytes higher than the transmit address, for example 037 and 03F. **Two IPL ADD statements** will be created.
2. For one attachment at the **IBM Token-Ring Adapter (TRA)**, **four** sequential addresses are necessary. You add the lowest address, the system adds the other three. **Only one IPL ADD statement** will be created.

Please note that

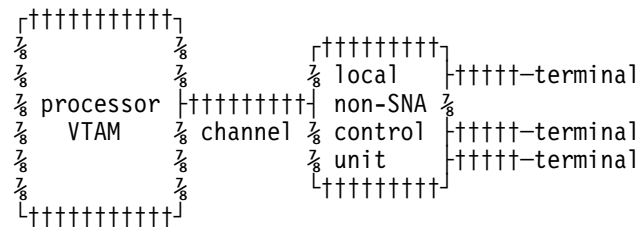
Local Non-SNA Terminals

are attached via

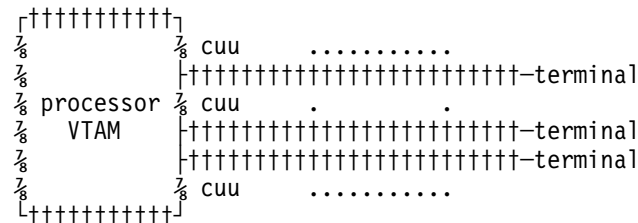
- Work Station Subsystem Controller of an IBM ES/9221
- Non-SNA control unit.

SNA terminals, on the other hand, are attached via an IBM 3174 or an IBM 3274 SNA control unit; it is this control unit's address that you add to the unit address list.

If a **non-SNA control unit** is involved, you do not add the control unit address, rather the channel unit addresses (cuu) of the terminals. In other words, for a physical configuration like this:



the corresponding "logical" configuration, that is: the one of the Hardware Configuration dialog can be understood like this:



Specifying Device Name

In addition to the specification of the unit address, the panel *Hardware Configuration: Add Device(s)* asks you to specify the device name (which in some cases is a combination of device name and model).

Figure 12 on page 42 lists the allowed device specifications. Note that quite a few of them are to be given in mnemonics. The dialog accepts each of these to create appropriate IPL ADD statements. For example, an SDLC line with address 386 at a TSC shows up in the IPL statement

ADD 386,3705,10

For some of the devices the dialog does just that: creating an IPL ADD statement. These devices are flagged by an 'A' in the second column of the figure below.

For cross-domain links, in addition to getting an IPL ADD statement generated, you can fill out the network skeleton SKDTRNET. This yields a complete definition in VTAM, CICS Transaction Server and VSE/POWER PNET. Please refer to Chapter 4, “Configuring a Multiple-Domain Network” on page 135. The cross-domain links are flagged by an 'X' in the figure below.

All other devices are eligible for a complete configuration, that is: the dialog creates a proper definition in VTAM and the CICS Transaction Server.

Specifying Device Name

Figure 12. Device Names Allowed in Dialog

Local Non-SNA		
24X80		This and the following local non-SNA device names are given by device characteristics.
24X80Q		24x80 screen; query support, for example IBM 3194, or PC DFT
32X80		32x80 screen; for example IBM 3278-3
43X80		43x80 screen; for example IBM 3278-4
27X132		27x132 screen; for example IBM 3278-5
24X80C		24x80 screen; color, for example IBM 3179
24X80CPS		24x80 screen, color, Programmed Symbol, SOSI; for example IBM 5555
32X80C		32x80 screen, color; for example IBM 3192-C
32X80CP		32x80 screen, color, Programmed Symbol, graphics; for example IBM 3279-S3G
DSCPRT		DSC printer
DSCPRTS		DSC printer, Programmed Symbol, SOSI; for example IBM 555x

Local SNA		
3274-x1A		Stands for IBM 3274-1A, 3274-21A, 3274-31A, 3274-41A
3174-xxL		Stands for IBM 3174-1L and IBM 3174-11L
3174-GW		Stands for IBM 3174 local control unit with token-ring gateway feature

Communication Controller Attached		
2701	A	Data adapter unit
2703	A	Transmission control unit
3705	A	Communication controller
3720-1		Communication controller configurable with NCP
3725-1		Communication controller configurable with NCP
3725-2		Communication controller configurable with NCP
3745-130		Communication controller
3745-170		Communication controller configurable with NCP
3745-210		Communication controller configurable with NCP
3745-310		Communication controller configurable with NCP
3745-410		Communication controller configurable with NCP
3745-610		Communication controller configurable with NCP
3791	A	Local communication controller
CTCA	X	Channel-to-channel adapter
3172		Interconnect Controller
OSAD	A	Open System Adapter Feature
OSA		Open System Adapter Port

Adapter Attached (ICA, TSC, or TRA)		
ICA-S/S	A	Start/Stop line at ICA/TSC
ICA-BSC	A	BSC line at ICA/TSC
ICASDLCX	X	SDLC cross-domain line from ICA/TSC to ICA/TSC
ICASDLCL		Leased SDLC line attached at ICA/TSC
ICASDLCS		Switched SDLC line attached at ICA/TSC
ICA-X25		SDLC line from ICA/TSC into X.25 network
ICA-CETI		SDLC line from token-ring adapter to token ring

For **DEVICE NAME**, in the **ADD A DEVICE** panel, specify either a *device name* according to the above list. Or, you may specify a *device type code*, which would give you a selection list of all devices which fall under that device type code. For example, by entering device type code 3277 you would get a selection list for all terminals of the IBM 3270 family.

Entering the device name based on the above table gives you a quick path into the remaining definitions. If you are just now configuring your hardware and do not have the above table by your side, the dialog can guide you toward selecting the proper device name. By entering a '?' or an incorrect device name, you cause the dialog to display the *Hardware Configuration: Device Group* panel, which is shown in Figure 13 on page 44.

Proceeding Further in the Dialog

```
ADM$HDWD                HARDWARE CONFIGURATION: DEVICE GROUP

ENTER A SELECTION NUMBER AND PRESS ENTER.

First address of the device to be defined:

Telecommunication Devices                                Other I/O Devices
1 Local non SNA (Terminals/PCs)                          5 Card Devices
2 Local SNA (Controller)                                  6 Console Devices
3 Telecom. Devices (NCP, CTCA)                           7 Diskette Devices
4 Subsystems: ICA / Token Ring                           8 Disk Devices
                                                         9 Tape Units
                                                         10 Optical Character Readers
                                                         11 Printers
                                                         12 ESCON Directors
                                                         13 Miscellaneous
                                                         14 Unsupported Devices

PF1=HELP      2=REDISPLAY  3=END

==>
```

Figure 13. Device Group Panel

Select the device group whereupon you receive a list of device names, for example a list of all allowed local SNA device names. From this list choose the desired device name.

How to Further Proceed in the Dialog

Depending on which of the four groups the device belongs to, the dialog takes a particular path.

Local Non-SNA and Local SNA

For the first two groups, that is: local non-SNA and local SNA, the dialog takes you into the definition of the terminals, or *logical units*. Turn to section “Defining Logical Unit(s)” on page 74 to learn about this subject.

The first part of that section discusses some topics that are **specific to SNA devices**. Therefore, when considering a local **non-SNA** device ignore that part and use the information beginning with section “VTAM and CICS Transaction Server Parameters” on page 77. From here on, the definition of local non-SNA and local SNA devices follows the same path, with only minor differences.

Note: If, in the panel *Hardware Configuration: Add a Device*, you selected 3174-GW (local SNA control unit with token-ring gateway feature), the dialog guides you into defining logical units **twice**:

1. the logical units (if any) that are **directly attached** at the control unit
2. the logical units that are attached at the token ring. This attachment happens via so-called *downstream physical units* (DSPUs).

In section “Defining Token-Ring Attached Devices via Gateway” on page 124 you find detailed information on how this configuration is handled by the dialog.

Communication Controller-Attached

For the third group, communication controller devices, it is necessary to describe some properties of communication controllers. After you enter device name and address, the dialog

first takes you back

to the Unit Address List. Here you request 3=SELECT FOR FURTHER PROCESSING in order to get into the path for describing the communication controller. Please turn to “Describing the 37xx Communication Controller” on page 60 for the particular information.

Adapter-Attached

The fourth group, adapter attached devices, has to do with various link types. Turn to “Defining an Integrated Communication Adapter link” on page 50 for the particular information.

Defining how remote devices are to be attached

This section focuses on **remote** devices, and the possible methods by which these remote devices can be indirectly attached to the VSE/ESA host.

The first part of this section describes the connection of a LAN to the VSE/ESA host via an **Open Systems Adapter 2 (OSA-2)** or **3172 Interconnect Controller** (the remote devices then being attached to the LAN).

The second part of this section ("Defining an Integrated Communication Adapter link" on page 50) deals with **(integrated) adapter attached links**. The adapter is *integrated* into the host processor. The section has special information on

- X.25 packet-switched links
- IBM token-ring adapter links.

The third part of this section (starting with "Describing the 37xx Communication Controller" on page 60) describes **communication controller-attached links**.

Connecting a LAN to an OSA-2 or 3172

This section describes how you use the *Configure Hardware* dialog to define a LAN connection to an **IBM S/390 Open Systems Adapter 2 (OSA-2)** or **IBM 3172 Interconnect Controller** device.

The dialog creates ADD statements for the following device types:

OSAD
OSA
3172

For the device types OSA and 3172, the dialog also creates the required VTAM books.

In the *Configure Hardware* dialog, the SELECTION LIST: DEVICES contains these devices under group 3: Telecommunication Devices:

3172-1	Interconnect Controller
OSA Feature	Open Systems Feature
OSA Port	Open Systems Port

Note that there are two device types to be specified for an OSA-2 (with different addresses):

- **OSAD** is the device type for the Open Systems Adapter Support Facility (OSA/SF) program. You can have only one OSAD definition (ADD statement) for an OSA-2.

Select "OSA Feature" in the dialog.

- **OSA** is the device type for data transfer. You can have more than one OSA definition (ADD statement) for an OSA-2.

Select "OSA Port" in the dialog.

When adding an OSA or 3172 device, the panels LAN LIST and MEDIUM TYPE are displayed to define device-specific information.

The LAN LIST panel is initially empty. When selecting ADD LAN (PF-Key 6), the panel MEDIUM TYPE is displayed to define a LAN (Local Area Network) to OSA or the 3172.

```
COM$ICL1                HARDWARE CONFIGURATION: LAN LIST

Enter the required data and press ENTER.
```

OPTIONS: 2 = ALTER LAN DEFINITION 3 = SELECT FOR FURTHER PROCESSING
 5 = DELETE LAN

		-----NETWORK TYPE -----					
OPT	CUADDR ADAPTER	TOKEN RING	TOKEN BUS	ETHERNET	FDDI	BOX MGR	
-							
-							
-							
-							
-							
-							
-							
-							
-							

PF1=HELP 2=REDISPLAY 3=END 5=PROCESS 6=ADD LAN

Figure 14. Panel **HARDWARE CONFIGURATION: LAN LIST**

```
COM$LAN                      SELECTION LIST: MEDIUM TYPE

Select one of the entries by entering 1.

                                Address of the device to be defined:

SEL      MEDIUM TYPE DESCRIPTION
-
-         RING          SNA TOKEN-RING
-         BUS           SNA TOKEN-BUS
-         CSMACD        CSMA/CD NETWORK
-         FDDI          FDDI LAN
-         BOXMGR        BOX MANAGER

PF1=HELP      2=REDISPLAY  3=END

DEFINE THE MEDIUM TYPE.3172
```

Figure 15. Panel SELECTION LIST: MEDIUM TYPE

On the panel MEDIUM TYPE, the selection BUS (SNA Token-Bus) is offered for the 3172 only. Since several networks can be attached to one 3172 address, the subsequent panel DEFINE ADDRESS (which is not shown) allows to define the cuu address for the LAN to be attached.

Attaching remote devices

The medium type BOXMGR (Box Manager) establishes the communication between an OSA or 3172 and NetView. In this case, only some simplified VTAM definitions are needed. No further information is required for the BOXMGR and the dialog finishes here. For other medium types, the panel DEFINE LAN requests further information as shown in Figure 16:

```
ADAPTER NUMBER
SAP ADDRESS
TIMER
```

This panel is displayed for both, OSA and the 3172.

```
COM$ICL2          HARDWARE CONFIGURATION: DEFINE LAN

Enter the required data and press ENTER.

Specify the following data for the local area network attached to your
3172 interconnect controller or Open Systems Adapter.

ADAPTER NUMBER..... ____      Enter the relative adapter
SAP ADDRESS..... 4             number assigned to this adapter
TIMER..... 60                  Enter the address of the
                                service access point (SAP).
                                Enter the time (in seconds)
                                that VTAM will wait
                                after the channel is activated
                                for a response from the con-
                                troller.

PF1=HELP      2=REDISPLAY  3=END
```

Figure 16. Panel HARDWARE CONFIGURATION: DEFINE LAN

At this point, the panel LAN LIST is redisplayed (Figure 14 on page 47) with an entry for the newly defined LAN.

With option 3 (SELECT FOR FURTHER PROCESSING), the attached PUs and LUs can be defined. Note that option 3 is not valid for the BOXMGR. The PUs and LUs are defined as for remote devices on adapter attached links.

Naming Conventions Used (4-character)

The dialog assigns VTAM resource names according to the naming convention shown in Figure 17 below.

VBUILD	Ycuusuba
Port	Ucuusuba
Group	Qcuusuba
Line	Mcuusuba
Dummy PU (TYPE=XCA)	Fnnnsuba
PU	Jnnnsuba
LU	Rnnnsuba
CICS termID	Rnnn

Figure 17. VTAM Naming Convention.

In the table:

- **cuu** is the channel unit address of the LAN. For OSA, this is equal to the cuu of the OSA ADD statement. For the 3172, this is the value entered on panel DEFINE ADDRESS.
- **suba** is the 4-digit subarea number.
- **nnn** is a unique number from 000 - 999.

VTAM Books Created

The dialog creates two types of VTAM books,

```
VBUILD TYPE=XCA
```

to define the medium, and

```
VBUILD TYPE=SWNET
```

to define the related switched major node with all PUs and LUs.

These definitions are stored in VSE/ICCF library 51 in members VTMOA and VTMOA2. These member names are used for both, OSA and 3172 definitions.

With the selection of "Catalog Startup Members" these definitions are cataloged and included in the VTAM startup job.

Defining an Integrated Communication Adapter link

This section discusses the attachment at an **integrated communication adapter (ICA)**. This is in contrast to an attachment via a **communication controller** (for example, an IBM 3745) which runs with an NCP.

The **integrated communication adapter** considered here is either an

- Integrated Communication Adapter (ICA) such as the Telecommunications Subsystem Controller (TSC) of the IBM ES/9221, or the
- IBM Token-Ring Adapter (TRA) of the IBM ES/9221.

In using the term *ICA*, this publication refers to either of the two. The example configuration in Figure 18 illustrates a configuration with ICA-attached links.

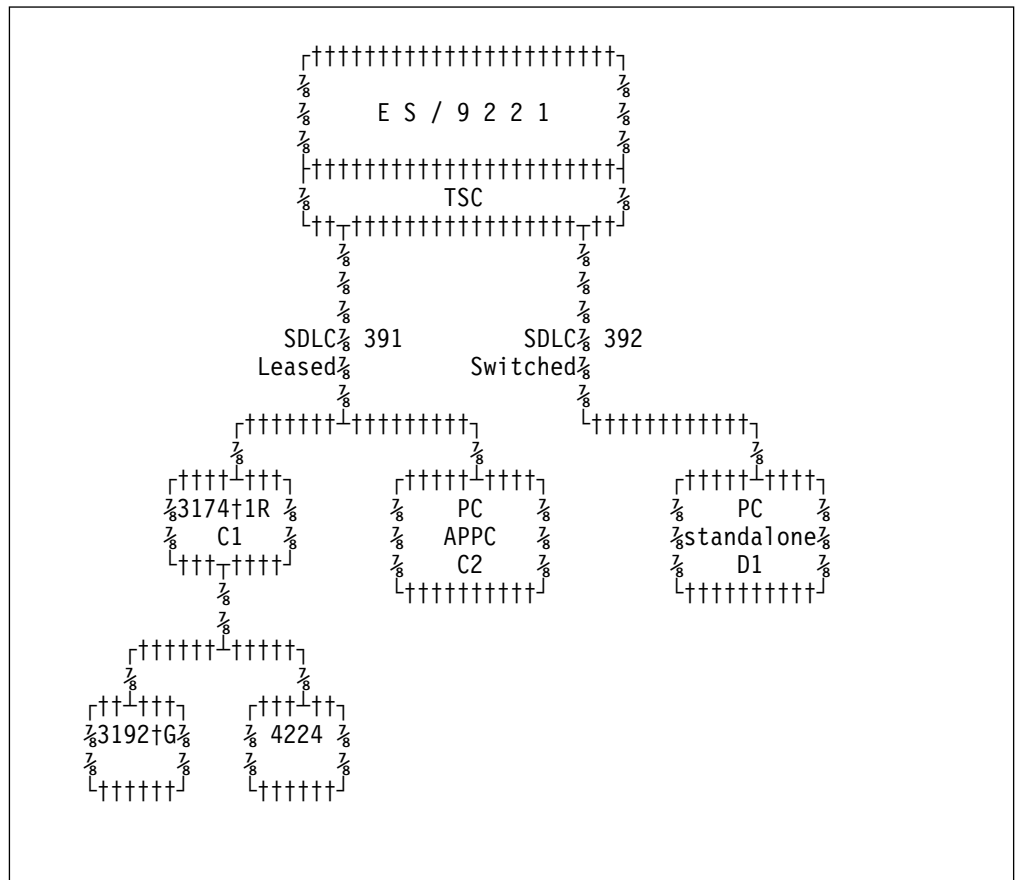


Figure 18. Example Configuration - ICA-Attached Links

The example shows the following configuration of remote devices:

- A TSC within an IBM ES/9221.
- Two SDLC lines attached at the TSC: one leased line at address 391, one switched line at address 392. The leased line serves two physical units:
 - An IBM 3174-1R control unit with SDLC station address C1.
 - An IBM workstation with APPC. Its SDLC station address is C2.

The 3174-1R serves two logical units: an IBM 3192-G Display Station and an IBM 4224 printer.

- An IBM workstation at the switched line. Its SDLC station address is D1.

Figure 12 on page 42 refers to several adapter attached SDLC lines. They are summarized below. For each item, a term in parentheses indicates what you specify in the panel *Hardware Configuration: Add Device(s)* (see Figure 11 on page 40).

For an SDLC line, you can choose among the following **link types**.

SDLC Leased (ICASDLCL)

A leased link establishes a permanent connection. Dialing is not necessary.

SDLC Switched (ICASDLCS)

A switched link requires dialing before a connection is established.

SDLC X.25 (ICA-X25)

An **X.25 packet-switched** link leads through a packet-switched data network (PSDN). A PSDN provides the equivalent of leased and switched connections: permanent and switched virtual circuits, respectively. The VSE/ESA Interactive Interface dialogs support the definition of X.25 packet-switched links that are attached **to an ICA or a TSC**.

SDLC Token-Ring Adapter (ICA-CET)

A token-ring link connects a Type-2 or a Type-5 physical unit.

Type-2: A token-ring link connects a **Type-2** physical unit to the token-ring adapter (TRA), at the VTAM host, via an IBM token ring.

VTAM handles this connection in a way similar to an **SDLC switched connection**. Therefore, the configuration of the link will result in a *LAN major node plus a switched major node*. At this switched major node, the Hardware Configuration dialog does not define PUs other than those at the token ring.

Note: The dialog supports the attachment of the following Type-2 physical units at the token ring:

- IBM 3174 xxR control unit
- IBM Series/1
- IBM System/36
- IBM Workstation

Type-5: A token-ring link also connects a **Type-5** physical unit (VTAM host) to the TRA, via an IBM token-ring. This is then a connection from one VTAM host (from the TRA) to another VTAM host (to the TRA). VTAM treats this connection like a **leased SDLC** link, not like a switched SDLC link as is the case for Type-2.

It is also a **cross-system** link, and is treated like the selection 'ICASDLCX' (for SDLC cross-domain) which is explained in the following paragraph. This means: the dialog does not offer any further definitions.

SDLC Cross-domain (ICASDLCX)

A **cross-domain** link connects two systems. The VSE/ESA Interactive Interface dialogs do not support the definition of cross-system links (other than adding them to the unit address list). You do this manually by filling out a

Attaching remote devices

network skeleton; see Chapter 4, “Configuring a Multiple-Domain Network” on page 135.

For **non-SDLC links**, for example BSC and S/S, the dialog takes you back to the list of unit addresses. There you can make a disposition: either *process* what you have defined so far (part of the processing is the *cataloging* of IPL statements, see section “Cataloging the Configuration” on page 85). Or, you continue making address specifications for more devices.

The Interactive Interface does not provide dialogs to further configure non-SDLC lines. You must do this manually; see “Defining Remote Non-SNA Devices” on page 130.

SDLC links, on the other hand, can be further configured through the Interactive Interface dialog; see the following sections. After selecting any of the adapter attached SDLC lines, you receive the panel *ICA Line List*. You would opt for 3 (SELECT FOR FURTHER PROCESSING) to continue your path through the Interactive Interface dialog.

Figure 19 shows an example of an *ICA Line List* panel, after you selected an ICA-attached SDLC line and just before you SELECT FOR FURTHER PROCESSING (option 3).

```
COM$ICA1          HARDWARE CONFIGURATION: ICA LINE LIST
Enter the required data and press ENTER.
OPTIONS: 3 = SELECT FOR FURTHER PROCESSING
-----
OPT      ADDR    PROTOCOL LEASED  SWITCHED  LINK-TYPE -----
              X.25 PACKET  TOKEN    CROSS
              SWITCHED    RING      SYSTEM
3         035      SDLC      X
-
-
-
-
-
-
-
-
-
PF1=HELP      2=REDISPLAY  3=END      5=PROCESS
                  9=LIST SWI
```

Figure 19. *ICA Line List*

If you specified link type

SDLC Leased or
SDLC Switched

and requested SELECT FOR FURTHER PROCESSING, you receive a display of *physical units* (control units) that are presently associated with ICA links. The next step would be the definition of the **physical unit** which is described in section “Defining the Physical Unit (PU)” on page 67.

If you specified link type

SDLC X.25 or
SDLC Token-Ring

and requested SELECT FOR FURTHER PROCESSING, you are not yet ready to define the physical unit. Instead, you need to make some definitions applicable only to an X.25 packet-switched link or to a token-ring link, respectively. They are discussed in the following two sections.

Defining an X.25 Packet-Switched Link

Some Conceptual Information

To describe ICA-attached links that go through a Packet-Switched Data Network (PSDN), several concepts and definitions must be presented first. See also Figure 20 on page 54.

At a *port* of the ICA, the network common carrier establishes a line. The line has two channel unit addresses: the transmit address and the receive address. These two form a *port address pair*. The *port number* is identified by the first address (the transmit address).

Associated with a port/line are one or more *logical channels*. In a PSDN, *real* end-to-end transmission channels are not assigned. However, a logical channel provides the equivalent of a dedicated end-to-end connection. This type of connection is called a *virtual circuit*. The network common carrier assigns virtual circuits to you.

VTAM, through its VTAM X.25 Communication Adapter Support, treats virtual circuits of a PSDN as a series of switched or nonswitched links. In the PSDN environment, the switched link is called *switched virtual circuit* (SVC). The nonswitched link is called *permanent virtual circuit* (PVC).

The Interactive Interface of VSE/ESA accounts for the above concept by asking you to define your ICA-attached X.25 packet-switched **links** in a special way. This will be described in the following sections. Physical units and their logical units at the end of the link are defined in the usual manner, that is, as if they were attached to SDLC lines.

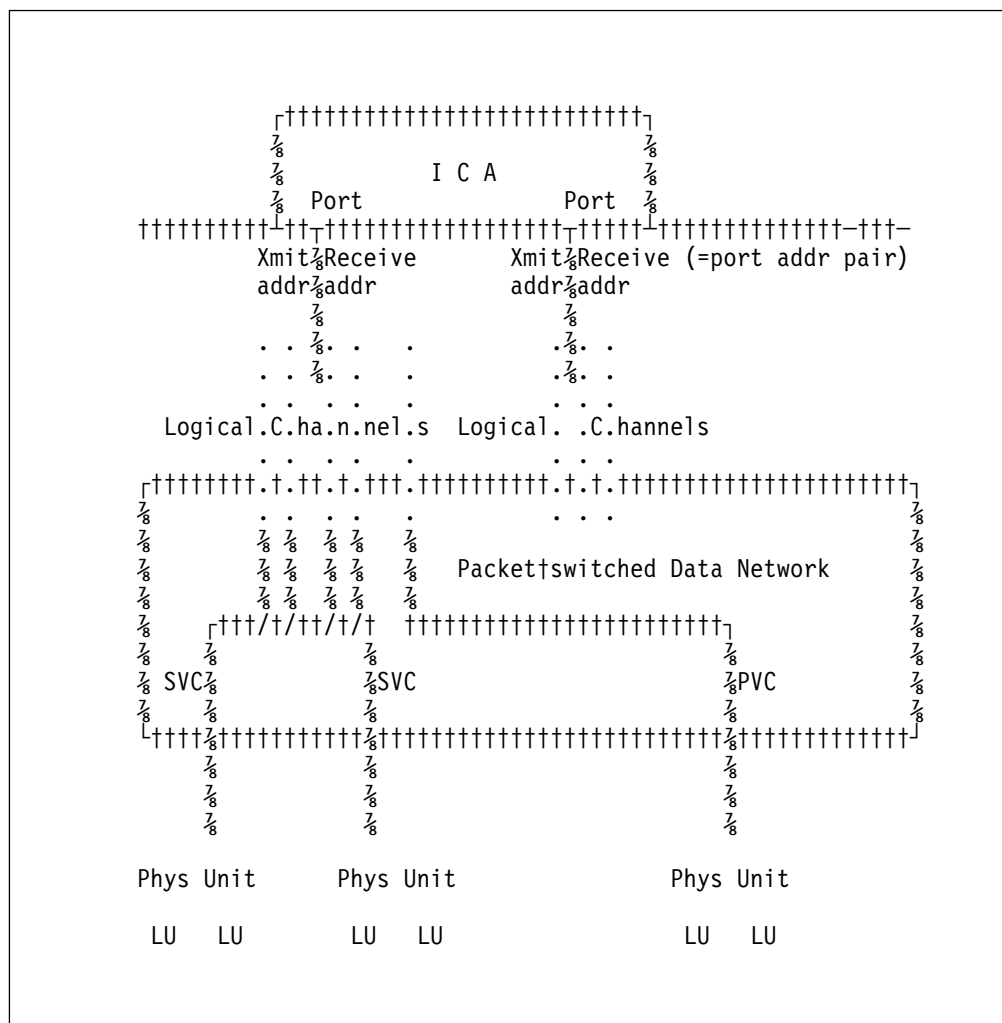


Figure 20. PSDN/X.25 Elements (Conceptual)

Entering X.25 Net Characteristics

Note: Several terms in the following panels are special and meaningful only in an X.25 packet-switching environment. It is assumed that you are already familiar with this terminology. For introductory reading see *X.25 Interface for Attaching SNA Nodes to Packet-Switched Data Networks General Information Manual* order number GA24-3345.

You are in the process of defining an adapter attached X.25 link. After, in the *Hardware Configuration: ICA Line List* panel, you requested SELECT FOR FURTHER PROCESSING, the dialog asks you to enter X.25 net characteristics. Except for DIAL NUMBER, the Interactive Interface provides defaults.

1. Network type

Network type is a decimal number and indicates which country network you belong to. One number may cover several country networks, for example '1' for network DATAPAC of Canada and network EIRPAC of Ireland. '1' is the default.

2. Reverse charging accepted.

This is a number (1=YES, 2=NO). It indicates whether the port will pay for the call when it is being called (on a switched virtual circuit) from a physical unit that requests reverse charging. The default is 2=NO.

'Reverse charging accepted' is an X.25 *optional user facility*. You decide about this facility as part of your network subscription.

3. Dial number

This is the calling address of the port. Your network common carrier assigns the number as part of your network subscription. The number is optional, depending on your network.

4. Packet length

This is the maximum user data field length when a *nonstandard default* packet size is to be used by the port's virtual circuits. Your network subscription determines whether you are allowed to deviate from the network's default. The standard default is 128. The allowed values are 16, 32, 64, 128, 256, 512, and 1024.

5. Window size

This is the window size when a *nonstandard default* window size is to be used by the port's virtual circuits. *Window size* is the maximum number of packets that can be sent before receiving an acknowledgment response. Your network subscription determines whether you are allowed to deviate from the network's default. The standard default is 2. The Interactive Interface dialog allows values from 1 through 8.

For any **permanent virtual circuit**, you may specify new values for 'packet length' and 'window size'. See the following section.

Having defined the X.25 net characteristics, you receive the *Hardware Configuration: Virtual Circuit List*. Initially it is empty, and you have to proceed by pressing

PF9 to define a PVC, or

PF10 to define an SVC.

These definitions will be discussed in the following sections.

Defining a Permanent Virtual Circuit (PVC)

This definition involves the following parameters:

1. Logical channel address

This identifies the logical channel to which the PVC is assigned. Your network common carrier hands logical channel identifiers to you.

2. Packet length

This is the maximum length of the user data field in a data packet. By entering a value, you let the packet length for this PVC deviate from the one that is valid for the link as a whole. The value must be agreed upon between you and the network common carrier.

3. Window size

This is the window size associated with this PVC/logical channel. By entering a value, you let the window size for this PVC deviate from the one that is valid for the link as a whole. The value must be agreed upon between you and the network common carrier.

4. SDLC Station Address

This is the SDLC station address (two hexadecimal characters) of the physical unit at the end of the PVC.

You establish this address during the customization of the control unit. Consult the relevant device publication for guidance in assigning this value.

Note: For all other links, you specify the SDLC station address as part of the physical unit definition (see “Defining the Physical Unit (PU)” on page 67). To somewhat simplify the dialog, the SDLC station address **for PVCs** is already specified here.

After you defined the PVC, your next step will be the definition of the physical unit. Refer to “Defining the Physical Unit (PU)” on page 67.

Defining a Switched Virtual Circuit (SVC)

This involves the specification of **logical channel addresses** and CALL DIRECTION for up to three SVC groups:

- calls incoming at the port
- calls incoming and outgoing (*two-way*)
- calls outgoing from the port

Note that this category concerns the **call** direction, not the direction of **data transfer**.

'One-way logical channels' is an X.25 *optional user facility*. You decide about this facility as part of your network subscription.

Logical channel addresses for SVCs of type:

- 'Calls incoming' must be higher than the address for any PVC;
- 'Two-way' must be higher than the addresses for type 'calls incoming';
- 'Calls outgoing' must be higher than the addresses for type 'two-way'.

You enter the logical channel addresses one by one for each SVC category. After entering the addresses for one category, you are transferred back to the *Hardware Configuration: Virtual Circuit List*. You go through a maximum of three iterations.

Then, in order to define the **physical units**, enter option **3** (PRESENT PU). This subject is discussed below, in section “Defining the Physical Unit (PU)” on page 67.

Defining an IBM Token-Ring Adapter Link

The IBM token-ring adapter (TRA) provides a physical link and access control to the IBM Token-Ring Network. See Figure 21.

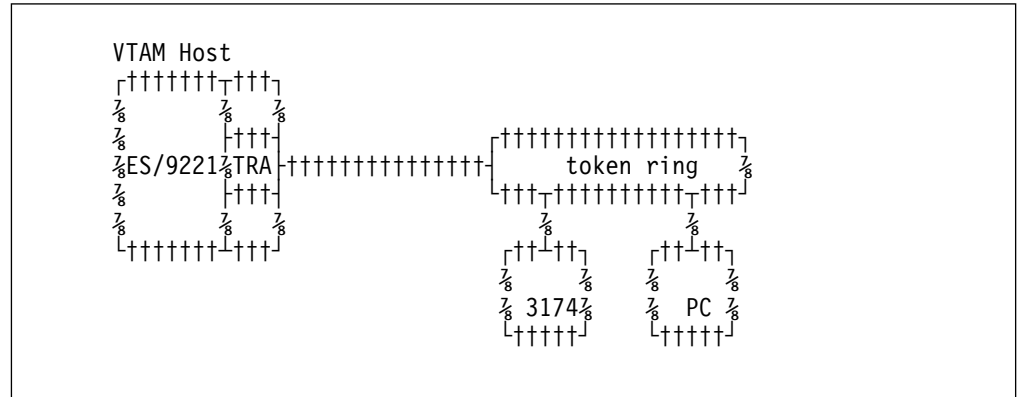


Figure 21. Token-Ring Adapter Link

A link that attaches at a token-ring adapter does not require a gateway device between the VTAM host and the token ring. This type of link is possible only if the host processor has this type of adapter, such as the IBM ES/9221.

Contrast this environment with the configurations described in “Defining Token-Ring Attached Devices via Gateway” on page 124 where an IBM 3174 control unit serves as a token-ring gateway. The control unit must be equipped with the token-ring gateway feature. This kind of link can be put into effect with **any processor**.

Note: At the **physical unit** level (not at the link level) a special type of gateway may be used. An IBM workstation can be defined as a gateway within the token ring to bunch together a group of up to 32 other workstations. The other workstations must be defined as **logical units**. This is to overcome the limit of 64 physical units per token-ring adapter. The concept has already been discussed in “Connecting a LAN to your VSE/ESA host” on page 10.

Each Token-Ring Adapter supports up to three connections to one token ring (these are three **logical** connections, on one physical connection). The VSE/ESA Interactive Interface dialog supports **only one connection per token-ring adapter**.

Also, its support is restricted to **one token-ring adapter** for a given token ring. A second token-ring adapter at your host would have to connect to a different token ring.

The dialog asks you to describe the token-ring adapter. After you had requested FURTHER PROCESSING in the *Hardware Configuration: ICA Line List* panel (see Figure 19 on page 52), the dialog displays the *Hardware Configuration: Add a Token-Ring Adapter* panel. Refer to the following figure.

Link Information - Token-Ring

```
COM$TRA1      HARDWARE CONFIGURATION: ADD A TOKEN RING ADAPTER

Enter the required data and press ENTER

LAN ADDRESS/1..... 4000      First 4 digits of the Token-Ring
                                Adapter address on the LAN

LAN ADDRESS/2..... _____ Last 8 digits of the Token-Ring
                                Adapter address on the LAN

Define the connection process

TIMER..... 20      valid range 0 .. 255

RETRY COUNT..... 2      valid range 0 .. 255

PF1=HELP      2=REDISPLAY  3=END
```

Figure 22. Describing the Token-Ring Adapter

LAN-ADDRESS

This is the address of the host processor on the token ring.

The address consists of 12 hexadecimal digits. You specify the address in two parts: the first 4 digits and then the right-most 8 digits.

You take the 8 digits either from the burnt-in number in the token-ring adapter card. The number is also known as *universally administered address*. Or you define a new address when you customize the token-ring adapter card. This number is also known as *locally administered address*.

Connection process

TIMER specifies the time period to elapse before a retry is attempted **during connection or disconnection** of a link station. The timer value is expressed in tenths of seconds, in the range 0 through 255.

RETRY COUNT specifies the number of times to retry a transmission **during connection or disconnection** of a link station. The valid range is an integer from 0 through 255. A value of 0 means no retry.

When the number of retries has been reached and the TIMER has elapsed for each retry, the link station is considered to be in an inoperative condition.

The Interactive Interface *suggests* some values, either VTAM-provided defaults or values which you had specified before for this token ring.

The Interactive Interface generates a PORT statement within a LAN major node (VBUILD TYPE=LAN). TIMER and RETRY COUNT for the connection process will end up as LANCON values of that PORT statement.

The values apply (*sift down*) to all stations that are attached to this link. You can override them for each individual station. They also serve as defaults for the

Connected State TIMER and RETRY COUNT for the individual station. See Figure 32 on page 71.

You now have described the TRA link. The next step is defining the **physical unit**. This topic is described in section “Defining the Physical Unit (PU)” on page 67.

Describing the 37xx Communication Controller

This section deals with 37xx communication controllers whose operation is controlled by an NCP. You had specified the address of the NCP link plus device name of the communication controller (see Figure 11 on page 40). You were taken back to the Unit Address List and selected 3=SELECT FOR FURTHER PROCESSING in order to get into describing the properties of the communication controller. This is the topic of the following section.

The 37xx communication controller is a *subarea node*. Your next panel, *Hardware Configuration: NCP Subarea*, asks you to specify the

SALIMIT This is the highest subarea number within your network. The default is 255.

NCP subarea This is a 3 to 5-digit decimal number which as subarea number is unique in your configuration. It must not exceed the maximum supported in your network (see the preceding parameter, SALIMIT).

The following (hardware related) information is unique to each controller type.

Channel Adapter Positioning

The Hardware Configuration dialog asks you to indicate the position where a channel adapter is located. Figure 23 shows an example panel for the IBM 3725-2.

NCP\$CA2 HARDWARE CONFIGURATION: 3725-2 CAS

Enter the required data and press ENTER.

Hardware information of 3725-2 at 06C:
Specify the channel adapters (CAs) installed in the 3725-2 controller and whether they will be operated with a two-processor switch (TPS). Mark with x.

POSITION	CAs	TPS
0	—	—
1	x	—
2	x	—
3	—	—

PF1=HELP 2=REDISPLAY 3=END

Figure 23. Example of Channel Adapter Positioning

Each communication controller type has its own unique range of possible channel adapter positions:

3720	0 or 1
3725-1	0 through 5
3725-2	0 through 3
3745-130, 170	0 through 3
3745-210, 310, 410, 610	0 through 15

Two-Processor Switch

Most channel adapters can be operated with a Two-Processor Switch (TPS). The applicable panel indicates which channel adapters are eligible. Refer to Figure 24 which shows the panel layout for an IBM 3745-210.

```

NCP$CA5      HARDWARE CONFIGURATION: 3745 CAS AND STORAGE SIZE

Enter the required data and press ENTER.

Hardware information of 3745-210   at 07D:
Specify the channel adapters (CAs) installed in the 3745-210 controller and
whether they will be operated with a two-processor switch (TPS). Mark with x.

  POSITION      CAs      TPS      POSITION      CAs      TPS
    0          -        -        8          -        -
    1          -        -        9          -        -
    2          -        -       10          -        -
    3          -        -       11          -        -
    4          -        -       12          -        -
    5          -        -       13          -        -
    6          -        -       14          -        -
    7          -        -       15          -        -

MEMORYSIZE....._____ Enter the memory size either in K or M.
USGTIER....._____      Number of scanners of the controller

PF1=HELP      2=REDISPLAY  3=END
  
```

Figure 24. Specifying Channel Adapters, Memory Size, 2-processor Switch

Memory Size

You can equip the IBM 3725-1 and the IBM 3745 with various memory sizes. The IBM 3725 **Model 2** comes with 512K bytes of memory, but can be upgraded to a Model 1.

The following memory sizes are valid:

3725-1 512K bytes up to 3072K bytes, with increments of 128K

3745 512K bytes up to 8192K bytes, with increments of 128K.

The IBM 3720 has a given memory size.

Usage Tier

Usage tier is a number which specifies the scanners and channel adapters that you can attach to your communication controller. For example, 3 stands for: various combinations of low speed scanners (LSS) and high speed scanners (HSS), 4 token-ring adapters and 8 channel adapters (note that Models 130 and 170 cannot have more than 4 channel adapters).

The usage tier value which you specify in the dialog cannot be higher than the usage tier level of the NCP you installed. If you violate this rule, your NCP generation will fail. On the other hand, the usage tier level of your installed NCP can be higher than the usage tier of your controller, that is, higher than the USGTIER value.

For an IBM 3745, a subsequent panel asks you for the *operation mode* of your processor. The processor's mode is used for validation of the channel adapters.

Describing the NCP Link(s)

At this point, you are about to define a new NCP. Hence, in the *Hardware Configuration: NCP Name List* panel, you indicate **(PF6)** that you want to *ADD an NCP*. Figure 25 shows the layout of the *Hardware Configuration: NCP Name List* panel. You can define eight NCPs for one communication controller.

```
NCP$PAN1          HARDWARE CONFIGURATION: NCP NAME LIST

LIST OF NCPS FOR A SPECIFIC CCU

Communication Control Unit: 3725 1    CCU-Address: 05A

OPTIONS: 3 = LIST ATTACHED LINES    5 = DELETE NCP    6 = GENERATE NCP

          OPT          NCP-NAME    GENERATED

          -
          -
          -
          -
          -
          -
          -
          -

PF1=HELP    2=REDISPLAY    3=END          5=PROCESS    6=ADD NCP
              9=ALT CCU
```

Figure 25. NCP Name List

In the *Hardware Configuration: ADD NCP* panel, you are asked to give the

Name of the new NCP.

Afterwards, when you have completed the NCP definition, that is:

- links
- physical units
- logical units

you will automatically come back to the *NCP Name List* panel. You should then request (option **6**) to

generate the NCP.

But first you proceed through the link definitions.

Remember: you had entered the name of the new NCP (in the *ADD NCP* panel). You receive the *Hardware Configuration: NCP Line List* panel.

In this panel press **PF6** to request an *ADD LINE*.

You receive the *Hardware Configuration: Define NCP Line* panel (not shown here). Defining the NCP link involves the following parameters:

- **Line type**

You indicate whether the link is on a

- leased line
- switched line, or
- NCP/Token Ring Interconnection (NTRI).

The remainder of data to be entered depends on whether the line you define is a **leased or switched** line, or whether it is an **NTRI** line.

Leased or Switched Line

For the specification of the following parameters refer also to the example shown in Figure 26.

```

NCP$LNK2          HARDWARE CONFIGURATION: DEFINE NCP LINE

Enter the required data and press ENTER.

ADDRESS..... ____      Enter number from 0 through 895

DATA MODE..... 1        1 = half-duplex
                        2 = duplex

CLOCKING..... _         1 = external source provides clocking
                        2 = 3745-210 provides clocking
                        3 = direct line attachment use

SPEED..... 2400          Enter the data rate for this line in
                        bits per second (e.g. 1200). Enter a
                        "?" to get a list with all valid data
                        rates (only for clocking=2 and
                        clocking=3).

CARRIER FACILITY..... 2 1 = half-duplex
                        2 = duplex

PF1=HELP          2=REDISPLAY  3=END

```

Figure 26. Defining an NCP Line (Leased or Switched)

- ADDRESS

This is the link address at the communication controller (not to be confused with the channel unit address of the communication controller at the central processor).

The allowed addresses are within the range of the following decimal numbers:

3720	0 - 27
3725 Model 1	0 - 255
3725 Model 2	0 - 255
3745 Model 130	(no addresses allowed)
3745 Model 170	0 - 159
3745 Model 210	0 - 895
3745 Model 310	0 - 895

3745 Model 410 0 - 895

3745 Model 610 0 - 895

Note: For the IBM 3720 and IBM 3725 with NTRI, certain addresses are not allowed. Please refer to the pertinent *NCP Resource Definition* manuals.

- **DATA MODE**

This parameter indicates whether your NCP is to communicate with the device in half-duplex (**HDX**) or full-duplex (**FDX**) mode.

- **CLOCKING**

Specify whether the communication controller itself or an external source provides the clocking. This parameter is directly associated with the following, the SPEED parameter. Specify

- 1** if an external source provides the clocking. The external source is either a modem or an attached *Data Terminal Equipment* (DTE). A modem cable or a direct attach cable may be used.
- 2** if the communication controller provides the clocking **and propagates it to the attached DTE**. A data signal received by the controller will be synchronized with the controller's clock because the DTE used this clock to transmit. The SPEED operand is required, and a direct attach cable must be used.
- 3** if the communication controller provides the clocking **but does not propagate it to the attached DTE**. The controller synchronizes on the received data signal because a different clock source is used at each end of the link. The SPEED operand is required, and either a direct attach cable or a modem cable may be used.

- **SPEED**

This is the data rate at which the stations (physical units) communicate with the communication controller. For external (modem) clocking, the SPEED parameter is optional. If given, it specifies the clocking rate of the modem.

For controller-provided clocking the SPEED parameter is required. Its value must match the capabilities of the controller. Specify the data rate in bits per second omitting fractions (if the link speed is 134.5 bps, use 134).

When entering a '?' or an invalid number, the dialog displays a selection list of allowed values.

- **CARRIER FACILITY** (links and modems).

This parameter indicates the physical characteristics of the communication facility: half-duplex or full-duplex.

Do not confuse this facility with the terms 'half-duplex' and 'full-duplex' for DATA MODE.

After entering the above values (in the *Hardware Configuration: Define NCP Line* panel), the dialog transfers you back to the *Hardware Configuration: NCP Line List* panel.

An example of the *Hardware Configuration: NCP Line List* panel is shown in Figure 28 on page 66.

NTRI Line

For the specification of the following parameters refer also to Figure 27.

NCP\$LNK3 HARDWARE CONFIGURATION: DEFINE NCP LINE	
Enter the required data and press ENTER.	
Specify the following data for TIC Number 1.	
ADDRESS..... _____	Enter the relative line number of your Token-Ring Interface Coupler (TIC). Enter a "?" to get a list with all valid addresses.
TR ADDRESS OF TIC..... _____	Enter the last 8 digits of the locally administered address of the TIC. (LAN address/2).
ADAPTER DEFINITION..... 1	Enter 1 for the token-ring adapter type 1, 2 for the token-ring adapter type 2 with a data speed of 4 Mbps and 3 for the token-ring adapter type 2 with a data speed of 16 Mbps. This parameter is only valid for the 3745 communication controller.
PF1=HELP 2=REDISPLAY 3=END	

Figure 27. Defining an NCP Line (NTRI)

- **ADDRESS**

This is the relative line number of the token-ring interface coupler (TIC). The number identifies the port and line number address at the communication controller. It consists of up to 4 digits. Valid addresses are determined by the type and model of the communication controller and the usage tier installed.

- **TR ADDRESS OF TIC**

This is the right-most part of the TIC's address on the token ring. It is made up of the last eight digits of the locally administered address of the TIC. Its value can range between 0 and 79999999.

- **ADAPTER DEFINITION**

This parameter applies only to the IBM 3745 communication controller. It specifies the token-ring **adapter** that is attached to the NTRI physical line and the **speed of data** on the token ring:

- 1 - for the token-ring adapter type 1 which can only be attached to the 4 Mbps token-ring network.
- 2 - for a token-ring adapter type 2 that is attached to the 4 Mbps token-ring network.
- 3 - for a token-ring adapter type 2 that is attached to the 16 Mbps token-ring network.

After entering the above values (in the *Hardware Configuration: Define NCP Line* panel), the dialog transfers you back to the *Hardware Configuration: NCP Line List* panel.

An example of the *Hardware Configuration: NCP Line List* panel is shown in Figure 28 on page 66.

```

NCP$LNK1          HARDWARE CONFIGURATION: NCP LINE LIST

LIST OF LINES ON AN NCP

NCP-Name: NCPNEW7    CCU-Model: 3745-210    CCU-Address: 05A
OPTIONS: 2 = ALTER LINE DEFINITION    3 = SELECT FOR FURTHER PROCESSING
        5 = DELETE LINE DEFINITION

      OPT      ADDR      LEASED      SWITCHED      NTRI

      -        020        X
      -        022        X
      -
      -
      -
      -
      -
      -
      -
      -
      -

PF1=HELP      2=REDISPLAY  3=END          5=PROCESS      6=ADD LINE
                  9=LIST SWI

```

Figure 28. *NCP Line List*

Repeat the PF6=ADD LINE process for all the links at the communication controller. When you are done with the last link and back at the *Hardware Configuration: NCP Line List* panel, select option

3 for Further Processing.

This leads you into the two remaining steps

- Physical unit definition
- Logical unit definition.

These tasks are described in the following sections.

Defining the Physical Unit (PU)

Figure 29 shows an example of a *Physical Unit List* **after** definitions have been made. Later in the dialog, panels come into play which are special to a certain link type, for example the IBM token ring.

Two physical units are defined at link 035. Notice, by the way, how the dialog has assigned a link name of 'L0350001' according to its own naming convention which is laid out in Appendix A, "Naming Convention" on page 221.

```

COM$COM1      HARDWARE CONFIGURATION: PHYSICAL UNIT LIST

LIST OF PU AT A LEASED SDLC LINK

Link Address: 035      Link Name: L0350001

OPTIONS: 3 = SELECT FOR FURTHER PROCESSING      5 = DELETE PHYSICAL UNIT

      OPT          SDLC          CONTROLLER
              ADDRESS          TYPE
      -            C1            3274 31C
      -            C2            4700
      -
      -
      -
      -
      -
      -
      -

PF1=HELP      2=REDISPLAY  3=END                        5=PROCESS      6=ADD PU

```

Figure 29. Physical Unit List

To start your physical unit definition, press PF6 for ADD PU.

The PU definition comprises the following parameters. With each parameter, the link types are shown to which the parameter applies.

1. **Subsystem Group** (applies to: all link types)

In the *Hardware Configuration: Subsystem Group* panel, you are asked to select one of the following two:

Display and Printer System, or
Intelligent System

Below, in Figure 30 on page 68 and Figure 31 on page 69, you find two lists of devices for each subsystem group.

2. **Physical Unit** (applies to: all link types)

Indicate the device number/model of the physical unit.

You will have to select from one of two selection sets, depending on the 'subsystem group' you had specified before.

For subsystem group 'Display and Printer System', the selection set is the one shown in Figure 30 on page 68.

Physical Unit

For subsystem group 'Intelligent System', the selection set is the one shown in Figure 31 on page 69.

```
COM$MDL          HARDWARE CONFIGURATION: DISPLAY/PRINTER CU

SELECT A PRODUCT, ENTER ITS NUMBER AND PRESS ENTER

  1 PC (standalone)
  2 PC Gateway
  3 Displaywriter
  4 8775 Display Terminal
  5 5550 Display System (Single Station)
  6 3820 Printer

      3270-Information-Display-System:
  7 ... 3274 Model 21C
  8 ... 3274 Model 31C
  9 ... 3274 Model 41C
 10 ... 3274 Model 51C
 11 ... 3274 Model 61C
 12 ... 3276 Model 12
 13 ... 3276 Model 13
 14 ... 3276 Model 14
 15 ... 3174 Model xxR
 16 ... 3174 xxR with TR gateway

PF1=HELP      2=REDISPLAY  3=END

==>
```

Figure 30. Display and Printer System - Physical Unit Selection

Note: If in the above panel you selected 16, that is: the IBM 3174 control unit with token-ring gateway feature connected via an SDLC leased line, the dialog guides you first into defining the logical units (if any) that are **directly attached** at the control unit. After that, you will come back to the PHYSICAL UNIT LIST. Here, with option 3 = SELECT FOR FURTHER PROCESSING you start the definition of the physical units **on the token ring**.

In section "Defining Token-Ring Attached Devices via Gateway" on page 124 you find detailed information on how this configuration is handled by the dialog.

```

COM$INTL          HARDWARE CONFIGURATION: INTELLIGENT SYSTEM

SELECT A PRODUCT, ENTER ITS NUMBER, AND PRESS ENTER

  1 Personal Computer (with APPC)    10 3680 Programmable Store System
  2 Scanmaster                      11 3770 Data Communic. System
  3 Series/1                        12 4700 Finance Communic. System
  4 System/34                       13 5280 Distributed Data System
  5 System/36                       14 5520 Administrative System
  6 System/38                       15 6670 Information Distributor
  7 3630 Plant Communic. System     16 8100 Information System
  8 3650 Retail Store System
  9 3660 Supermarket System

PF1=HELP    2=REDISPLAY  3=END

==>

```

Figure 31. Intelligent System - Physical Unit Selection

3. **SDLC Station Address** (applies to: all link types except SDLC Token-Ring and NTRI)

Specify two hexadecimal characters for the physical unit's station address. The address must be unique for each physical unit attached to the link. The valid range is X'01' through X'FE'.

You establish this address during the customization of the control unit. Consult the relevant device publication for guidance in assigning this value.

You can define up to eight physical units to a **leased** link. **Switched** links attach one physical unit at a time (the one that dialed in), but you can of course **define** any number of physical units.

Note: For all links **except X.25 packet-switched PVCs**, you specify the SDLC station address here, as part of the physical unit definition. To somewhat simplify the dialog, the SDLC station address **for X.25 packet-switched PVCs** is specified together with the link definition. See page 56.

4. **Identification Block** (applies to: all switched link types, SDLC Token-Ring, NTRI)

This is the (binary) block number. For certain control units, VSE/ESA automatically generates this block number. If the number is not known, the dialog requests that you specify the number.

The Identification Block is a 12-bit number (specified in hexadecimal notation - xxx). Check the appropriate device component description manual to determine the id block number for the given device.

Workstations use special communication programs which make the specification of a special id block number mandatory. For some commonly used programs the id block number is the following:

```

017 IBM Workstation 3270 Emulation Program Version 3
049 IBM 3270-Workstation or 3270-Workstation/G Communication Program
with PS/55

```

Physical Unit

050 APPC Workstation
05D IBM OS/2 Extended Edition
05D IBM Communication Manager/2
05E IBM Workstation Program
061 IBM Personal Communication/3270

5. **Identification Number** (applies to: all switched link types, SDLC Token-Ring, NTRI)

This is a 20-bit identification number (specified in hexadecimal notation - xxxxx) which is required to identify the physical unit. You may regard it as some kind of password.

The number can either be freely chosen according to a scheme that you developed for your installation. Or, you may use the device's serial number. You get the serial number from the component description manual for the device, or from the person who planned the device's installation.

For a type 2.1 peripheral node on a switched line, in addition to or in place of the preceding parameters, Identification Block and Identification Number, you may supply a control point name (CPNAME) value:

6. **Control Point Name** (applies to: all switched link types, SDLC Token-Ring, NTRI)

This is the control point (CP) name of a type 2.1 peripheral node. It is valid only for type 2.1 nodes that have a control point name.

The name consists of 1 to 8 characters. The first character must be alphabetic or @, #, \$.

7. **X.25 Packet-Switched Parameters** (applies to: SDLC X.25 SVC)

When defining a physical unit attached at one or more Switched Virtual Circuits (SVCs), you must specify some or all of the following X.25-unique parameters.

- **DIAL OUT** - indicates whether the host (= VTAM) can call the control unit (= physical unit). Note that DIAL OUT relates to host and physical unit. Compare this with the CALL DIRECTION parameter when defining the link (=SVC); see page 56. The latter specifies in which direction(s) the transmission through the link (SVC) may flow. In other words, when the host calls the control unit over an SVC, the call can travel only via an *outgoing* or via a *two-way* SVC.

The following four parameters appear on a separate panel.

- **DIAL NUMBER** - is the calling address of the physical unit (not of the port; see page 55). The number is between one and fifteen digits long. Your common carrier assigns the number when you subscribe to the network.
- **CUG INDEX** - is the identifier of a *closed user group* (CUG). CUG is an X.25 *optional user facility*. Provided you have subscribed to this facility, specify the CUG index if the physical unit is a member of more than one closed user group.
- **RPOA NUMBER** - is the identifier of a *recognized private operating agency* (RPOA). RPOA selection is an X.25 *optional user facility*. It applies to connections which span several networks. Provided you have subscribed to this facility, specify the RPOA number to indicate which route through the networks should be taken.

- REVERSE CHARGING - indicates whether the physical unit will be charged for the call (reverse charging).

8. SDLC Token-Ring Parameters (applies to SDLC Token-Ring)

When defining a physical unit that is attached via a token-ring link, you must specify some or all of the following token-ring related parameters. In doing this, bear in mind that VTAM treats this physical unit like an SDLC-switched station. As a result, the Interactive Interface dialog will generate a switched major node definition, plus a PU definition statement for each physical unit in the switched major node. The Hardware Configuration dialog cannot, at this switched major node, define physical units other than those at the token ring.

The Interactive Interface *suggests* some values, either system-provided defaults or values which you had specified before. Please refer to the following two figures.

The kind of data to be entered varies slightly depending on the type of token-ring **attachment**: integrated token-ring adapter (TRA) versus NCP/Token-Ring interconnection (NTRI).

Integrated Token-Ring Adapter:

```

COM$TRA3          HARDWARE CONFIGURATION: PU IDENTIFICATION

Enter the required data and press ENTER.

LAN ADDRESS/1 ..... 4000          First 4 hex digits of the MAC address
LAN ADDRESS/2 .....          Last 8 hex digits of the MAC address
IDBLK PARAMETER..... 017         Block number assigned to the specific
                                   device
IDNUM PARAMETER.....          Identification number assigned to the
                                   station being defined
CPNAME.....          Control point (CP) name of a type 2.1
                                   peripheral node
CALL DIRECTION..... 3            1-in, 2-out, 3-inout

Token ring specific information (optional, not needed for 3172 or OSA)
SIZE, STEP..... 2      1      Dynamic window process
TIMER, COUNT..... 10   1      Acknowledgement process
TIMER, COUNT..... 20   2      Connected state
TIMER, COUNT..... 50   1      Connection process
TIMER..... 20          Inactivity timer

PF1=HELP      2=REDISPLAY  3=END

==>

```

Figure 32. Describing the PU at the Integrated TRA

- LAN ADDRESS - is the address of the physical unit (the *station*) on the token ring, the so-called *medium access control* (MAC) address.

The address consists of 12 hexadecimal digits. You specify the address in two parts: the first 4 digits and then the right-most 8 digits.

If you do not enter the first 4 digits, VTAM's default value of 4000 will be used.

The last 8 digits are determined as follows:

Physical Unit

- a. You either use the burnt-in number in the token-ring adapter card. The number is also known as *universally administered address*.
 - b. Or you override this number when you customize the token-ring adapter card. On a workstation, this is accomplished by an Emulation Program. For an IBM 3174 control unit or for an IBM ES/9221, it is done via microcode customization. This number is also known as *locally administered address*.
- IDBLK and IDNUM and/or CPNAME - they are part of any SDLC-switched station definition. Please refer to items 4 on page 69 through 6 on page 70 above.
 - CALL DIRECTION - specifies whether the stations, or VTAM, or both, can initiate calls over this line.

If the line is to be used only for incoming calls, enter 1. If the line is to be used only for outgoing calls (VTAM is to call the physical unit), enter 2. If the line is to be used for both incoming and outgoing calls, enter 3.

- SIZE, STEP - specifies the *send window* size and the *window step*.

The **send window** is the maximum number of sequentially numbered I-LPDUs (Information-Logical Link Level Protocol Data Units) that the link station may have outstanding at any time. Valid numbers are 1 through 127.

Window step is the number of sequentially numbered I-LPDUs that a link station must receive before increasing the local window. Valid numbers are 1 through SIZE. A value of 0 means that the send window is static, and dynamic windowing cannot take place.

- **Acknowledgment** TIMER, COUNT - specifies the acknowledgment delay timer and the number of data units received prior to sending an acknowledgment. If either the timer expires or the count is reached, then an acknowledgment is sent.

The TIMER value is expressed in tenths of seconds. The valid range is 0 - 255. A value of 0, however, means that the timer is disabled.

Valid values for COUNT are 0 through 127.

If either TIMER or COUNT is specified as 0, then the other must be specified as 0.

- **Connection** TIMER, COUNT - the TIMER specifies the time period to elapse before a retry is attempted **during connection or disconnection** of a link station. The timer value is expressed in tenths of seconds, in the range 0 through 255.

COUNT specifies the number of times to retry a transmission **during connection or disconnection** of a link station. The valid range is an integer from 0 through 255. A value of 0 means no retry.

When the number of retries has been reached and the TIMER has elapsed for each retry, the link station is considered to be in an inoperative condition.

- **Connected state** TIMER, COUNT - the TIMER specifies the time period to elapse before a transmission retry is attempted, **at a time when the station is connected**. The timer value is expressed in tenths of seconds, in the range 0 through 255.

COUNT specifies the number of times to retry a transmission. The valid range is an integer from 0 through 255. A value of 0 means no retry.

When the number of retries has been reached and the TIMER has elapsed for each retry, the link station is considered to be in an inoperative condition.

- **Inactivity** TIMER - specifies the time period to elapse before a link station is considered to be inactive.

The timer is expressed in tenths of seconds. The valid range is 0 - 255. If 0 is specified, then the timer is disabled.

NCP/Token-Ring Interconnection (NTRI):

COM\$TRA4		HARDWARE CONFIGURATION: PU IDENTIFICATION	
Enter the required data and press ENTER.			
LAN ADDRESS/1.....	4000	First part of the LAN address (cannot be modified)	
LAN ADDRESS/2.....	_____	Second part of the LAN address. The entry will be ignored for CALL DIRECTION = 1.	
IDBLK PARAMETER.....	017	Block number assigned to the specific device	
IDNUM PARAMETER.....	_____	Identification number assigned to the station being defined	
CPNAME.....	_____	Control point (CP) name of a type 2.1 peripheral node.	
BACKUP TIC.....	_____	Enter the relative line number of your backup TIC. The entry will be ignored for CALL DIRECTION = 1.	
CALL DIRECTION.....	3	1=in, 2=out, 3=inout	
PF1=HELP	2=REDISPLAY	3=END	

Figure 33. Describing the PU at the Token-Ring (NTRI Attachment)

Except for BACKUP TIC, the parameters have the same meaning as in the case of an integrated TRA. Please refer to the explanations on the preceding pages.

LAN ADDRESS/2 is optional and will be ignored (no PATH statement generated) for call direction 1.

- BACKUP TIC - is the relative line number of the backup token-ring interface coupler (TIC), if there is any. The backup TIC provides for higher availability: if one coupler breaks down the other takes over.

The dialog does not check, rather assumes that the TIC has been defined correctly (in the *Hardware Configuration: Define NCP Line* panel; see Figure 27 on page 65).

The specification of a backup TIC here leads to a second PATH statement in the VTAM switched major node definition. It is therefore only meaningful for call directions 2 and 3.

Defining Logical Unit(s)

A logical unit is the means through which a user accesses the SNA network.

Logical units are, for example, IBM 3278 display stations attached to a physical unit such as the IBM 3274 control unit. In the case of *Intelligent Systems*, the logical unit may not be a separately identifiable device. Rather, the subsystem as a whole must be thought of as comprising the physical unit **and the logical unit**.

Defining the logical unit involves the following items:

- Device name
- Local address
- VTAM and CICS Transaction Server parameters.

These topics are presented in the following sections.

Note: Although the discussion primarily has an SNA network in mind, the later part of it is also applicable to **non-SNA terminals**. Therefore, refer to section "VTAM and CICS Transaction Server Parameters" on page 77 to learn about describing the characteristics of local non-SNA terminals. This is the task you have to do after you entered device name and address (which was discussed in the preceding chapter).

Device Name of Logical Unit

At this stage of your hardware configuration you will normally come to the *Hardware Configuration: Add Device(s)* panel. You either were in the *Hardware Configuration: SNA Logical Unit List* if you had already defined some logical units. In this case you would press PF6 for 'ADD LU' (see Figure 37 on page 77 for an example of the Logical Unit List). Or, the Logical Unit List is still empty, in which case the dialog leads you directly into *Add Device(s)*.

For the layout of the panel see the following figure. You may notice that it has a structure similar to the *Hardware Configuration: Add Device(s)* panel, shown in Figure 11 on page 40. But be aware that it deals with the *channel unit address* at the central processor whereas below you are specifying the **local address** at the control unit (or PU).

```

COM$ILU0      HARDWARE CONFIGURATION: ADD DEVICE(S)

Enter the required data and press ENTER.

STARTING ADDR..... 102      This may be the starting address of
                               an address range or the only address
                               to be added

END ADDR..... ____      This address specifies the upper lim
                           it of the address range to be added

DEVICE NAME..... 32X80____ This is the device name (generic
                             name) of the device to be added.
                             Enter a ? to get the list of all
                             applicable device names.

PF1=HELP      2=REDISPLAY  3=END
  
```

Figure 34. Define Local Address Panel

Under 'DEVICE NAME', you do not enter the actual device type (such as 3278-3), rather a *generic name* which refers to a typical device characteristic, for example the screen size 32X80.

By entering a '?' you can ask the dialog to display a list of valid generic names. The list is shown in the following two figures.

```

ADM$DEVL      SELECTION LIST: DEVICES

Select one of the entries by entering 1.

                               Address of the device to be defined:

SEL      DEVICE      DESCRIPTION
-      24X80      24x80 screen      e.g. 3278-2, PC-CUT, 3192
-      24X80Q      24x80 screen, Query      e.g. PC-DFT
-      32X80      32x80 screen      e.g. 3278-3, 3192
-      43X80      43x80 screen      e.g. 3278-4, 3192
-      27X132      27x132 screen      e.g. 3278-5, 3192
-      24X80C      24x80 screen, color      e.g. 3179, 3192
-      24X80CPS      24x80 screen, color, PS, SOSI      e.g. 5555
-      32X80C      32x80 screen, color      e.g. 3192
-      32X80CP      32x80 screen, color, PS      e.g. 3279-S3G
-      LU1PSF      Advanced Function Printer      e.g. 3812, 3816
-      LU3PRT      LU3 Printer      e.g. 3268-2
-      LU3PRTQ      LU3 Printer, Query

PF1=HELP      2=REDISPLAY  3=END
                8=FORWARD
  
```

Figure 35. Device Selection List - First Part

Logical Unit

ADM\$DEVL

SELECTION LIST: DEVICES

Select one of the entries by entering 1.

Address of the device to be defined:

SEL	DEVICE	DESCRIPTION	
—	27X132	27x132 screen	e.g. 3278-5, 3192
—	24X80C	24x80 screen, color	e.g. 3179, 3192
—	24X80CPS	24x80 screen, color, PS, SOSI	e.g. 5555
—	32X80C	32x80 screen, color	e.g. 3192
—	32X80CP	32x80 screen, color, PS	e.g. 3279-S3G
—	LU1PSF	Advanced Function Printer	e.g. 3812, 3816
—	LU3PRT	LU3 Printer	e.g. 3268-2
—	LU3PRTQ	LU3 Printer, Query	
—	LU3PRTS	LU3 Printer, PS, SOSI	e.g. 555x
—	SCSPRT	SCS Printer	
—	SCSPRTQ	SCS Printer, Query	
—	SCSPRTS	SCS Printer, PS, SOSI	e.g. 555x

PF1=HELP 2=REDISPLAY 3=END
PF7=BACKWARD

Figure 36. Device Selection List - Second Part

Local Address of the Logical Unit

Under 'STARTING ADDR' (see Figure 34 on page 75) you specify the local address at the control unit (physical unit).

If you are currently defining a physical unit of type '3270 Information Display System' (see Figure 30 on page 68) the local addresses often correspond to the port numbers, as follows:

PORT	LOC	ADDR
------	-----	------

A00	2
-----	---

A01	3
-----	---

A02	4
-----	---

.	.
---	---

.	.
---	---

For other device types (*Intelligent Systems* in particular) local addresses are assigned as part of the customizing of the control unit which is described in the applicable device manual.

You must specify a value of 0 (zero) for an *independent logical unit* in a Type 2.1 peripheral node. Type 2.1 nodes can have independent LUs, dependent LUs, or both, depending on the capabilities of the device. Independent LUs can have more than one concurrent LU-LU session (including parallel sessions for LU 6.2) and can act as primary LU.

IBM Series 1 and IBM System/36 are examples of Type 2.1 nodes. VSE/ESA, during activation of the node, **automatically determines** whether a peripheral node is a type 2.1 or a type 2.0.

The dialog allows you to enter a **range** of local addresses. This is useful when defining either

- A set of similar devices at contiguous local addresses, or
- A device capable of maintaining multiple sessions to the VTAM host, for example the IBM 3650 Retail Store System, the IBM 3290 which has *multiple interactive screens* (MIS), an IBM PC, or an IBM 3194.

The Hardware Configuration dialog does not allow to add multiple LUs with local address 0. You are therefore advised not to define LUs of type 6.2 through the dialog, but to let VTAM reconfigure them **dynamically**.

Note: There are devices, for example the IBM 5550, which carry a so-called *secondary local address*. For the IBM 5550, the primary local address defines the IBM 5555 Display Station, and the secondary local address the IBM 5553/7 printer. In the dialog, you specify this secondary address just like the primary address, that is: under 'STARTING ADDR' with a proper DEVICE NAME.

VTAM and CICS Transaction Server Parameters

After you enter device name and local address(es), the dialog already knows a lot about the device in question. It now displays, in the *Hardware Configuration: SNA Logical Unit List*, the information that you had given, plus some other parameter values which the dialog generated itself. For an example of this display see the following figure.

```

COM$ILUF          HARDWARE CONFIGURATION: SNA LOGICAL UNIT LIST

ENTER OPTIONS (AND CHANGE THE FIELDS WITH OPTION 2)

OPTIONS: 2 = ALTER      4 = SHOW VTAM PARMS           CU-type: 3274 X1A
        5 = DELETE     6 = TERM-ID FOR AUTOINSTR       CU-ADDR: 333
                                                    PU-name: A3330001

OPT   LOC    DEVICE    NETNAME    LOGAPPL    VTAM PARM    PRINT    AUTOINST    CICS
      ADDR                                TABLE    TO         MODEL      TERM ID
  2     2     LU3PRT    S0060001    DBDCCICS    PLU3PRT      S006     VSELU2A
  -     4     24X80    S0110001    _____ D32702S      S006     VSELU2A
  -     5     24X80Q   S0090001    _____ D3272QS      S006     VSELU2Q
  -     6     24X80Q   S0100001    _____ D3272QS      _____ VSELU2Q
  -                                     _____
  -                                     _____
  -                                     _____
  -                                     _____
  -                                     _____
  -                                     _____
  -                                     _____
  -                                     _____
  -                                     _____

POSITION NEAR ADDR == >                LOCATE NETNAME == >
PF1=HELP      2=REDISPLAY  3=END                    5=PROCESS  6=ADD LU
                  9=VTAM

```

Figure 37. SNA Logical Unit List

The logical unit definition works differently depending on how the logical unit is defined to CICS Transaction Server. There are two possibilities:

1. Permanently installed
2. Autoinstalled

1. Permanently Installed

units have a permanent entry in the *CICS system definition* (CSD) file. Based on your input, the dialog creates this definition in at least one of the CSD *groups* VSETERM1, VSETERM2 or VSETERM3. The definition essentially consists of a DEFINE TERMINAL command:

```
DEFINE TERMINAL(trmidnt) GROUP(VSETERMn)
  TYPETERM(ttname)
  NETNAME(netname)
  .
  .
```

Associated with a DEFINE TERMINAL command is always a TYPETERM definition:

```
DEFINE TYPETERM(ttname) GROUP...
  DEVICE...  TERMMODEL...
  PAGESIZE...
  .
  .
```

TYPETERM definitions are made via the transaction CEDA of CICS Transaction Server *Resource Definition Online* (RDO). A TYPETERM defines a class of terminals which have identical properties.

The dialog generates as default a TYPETERM name (**ttname**) that fits best the selected terminal. You may change this default to another name. If the TYPETERM name you selected does not exist, you must add this TYPETERM definition to the CSD file using transaction CEDA.

VSE/ESA supplies a set of TYPETERM definitions in the CSD *group* VSETYPE. Appendix C, "VSE/ESA Definitions for Autoinstall Terminals" on page 247 has a complete listing of these definitions.

You can create your own TYPETERM definitions by using transaction CEDA.

Note: If you migrated your terminal definitions via VSE/ESA migration at POST BASE time, the system built TYPETERM definitions in group VSETYPE1 for any of your own definitions or for any of the VSE/SP supplied definitions that you had changed.

2. Autoinstalled

terminals have no permanent definition. Instead, CICS Transaction Server creates and installs the resource definition dynamically when the terminal is needed, at logon time. To do this, CICS Transaction Server uses a **model TERMINAL definition** from the CSD. This process is known as automatic installation, or *autoinstall*.

When a logon request is received from a terminal, an *autoinstall exit program* may have to choose one from a number of model TERMINAL definitions. IESZATDX is the autoinstall exit program that is provided by VSE/ESA. It picks up the terminal's model name as supplied by VTAM using the specified entry in the MDLTAB macro. It also picks up (if available) the term ID of the PRINTTO printer and term ID of the terminal as supplied by VTAM using the specified entry in the ASLTAB macro.

The autoinstall exit program IESZATDX is further discussed in section “Autoinstall Exit Program IESZATDX” on page 90.

The CICS Transaction Server has a limit for the number of autoinstall terminals that can be active at the same time. You are able to set this limit via the AUTOINST operand of table DFHSITSP. The default value is 100.

Each terminal definition should have an AUTINSTNAME. Also, it must make itself known as model definition via the AUTINSTMODEL parameter. The DEFINE TERMINAL command shown above would then be augmented as follows:

```
DEFINE TERMINAL(trmidnt) GROUP...
  TYPETERM(ttname)
  .
  .
  .
  AUTINSTMODEL(ONLY)
  AUTINSTNAME(autinstname)
```

To learn about all aspects of autoinstall, please refer to the IBM manual *CICS Resource Definition Guide* SC33-0708.

Note: Do not define a **terminal printer** as an autoinstall terminal, because the printer must already be *installed* before the first terminal user attempts to use the printer.

The dialog presents to you a default autoinstall model name that fits best the selected terminal. All default models are delivered with the VSE/ESA package in the CSD group VSETERM.

If you overtype the AUTOINST MODEL name with a name that is not defined in your system, it is your responsibility to create this model by using the CICS transaction CEDA.

VSE/ESA supplies a set of model definitions in group VSETERM, but you can create your own model definitions. Place your own definitions into a separate group, and be sure to *install* this group.

The names of VSE/ESA supplied models are shown in the following figure.

Logical Unit

Figure 38. Mapping of Terminal Generic Names to Autoinstall Model Names

Generic Name	Name of Bestfitting Model	SNA or not
24X80	VSE32782	non-SNA
24X80Q	VSE3278Q	non-SNA
32X80	VSE32783	non-SNA
43X80	VSE32784	non-SNA
27X132	VSE32785	non-SNA
24X80C	VSE32792	non-SNA
24X80CPS	VSE5555	non-SNA
32X80C	VSE32793	non-SNA
32X80CP	VSE3279G	non-SNA
DSCPRT	VSEDCP	non-SNA
DSCPRTQ	VSEDCPQ	non-SNA
DSCPRTS	VSE5557	non-SNA
24X80	VSELU2A	SNA
24X80Q	VSELU2Q	SNA
32X80	VSELU2B	SNA
43X80	VSELU2C	SNA
27X132	VSELU2D	SNA
24X80C	VSELU2E	SNA
24X80CPS	VSELU2H	SNA
32X80C	VSELU2F	SNA
32X80CP	VSELU2G	SNA
LU3PRT	VSELU3A	SNA
LU3PRTQ	VSELU3Q	SNA
LU3PRTS	VSELU3C	SNA
SCSPRT	VSESCSPA	SNA
SCSPRTQ	VSESCSPQ	SNA
SCSPRTS	VSESCSPC	SNA

The model definitions are listed in Appendix C, “VSE/ESA Definitions for Autoinstall Terminals” on page 247.

The *SNA Logical Unit List*, which was shown in Figure 37 on page 77, has four examples: the first line for a permanently installed terminal, the other three for autoinstall terminals.

In this panel you may review the parameter values which the dialog had created. In case of an **autoinstall terminal**, you can change any value by overtyping the displayed value and then selecting option

2 ALTER DEFINITIONS

In addition, option

6 TERM-ID FOR AUTOINST

takes you into the *Hardware Configuration: Terminal (LU) Details* panel, which is shown below. Here you can enter the TERM ID (CICS). You are advised, however, to supply a CICS term ID for an autoinstall terminal only if your installation requires it. It may impact the performance during logon.

In case of a **permanently installed** terminal, remember that the dialog (as a first guess) always assumes that you want to define an autoinstall terminal. If you want to override this assumption, **erase the AUTOINST MODEL name** (VSELU2A|Q in the above example) before you request 2=ALTER DEFINITIONS. The dialog now understands that you want to define a permanently installed terminal. It displays for you the *Hardware Configuration: Terminal (LU) Details* panel whose content is limited to **one terminal (LU) only**.

This panel displays different values depending on whether it describes a permanently installed terminal or an autoinstall terminal. The example shown in Figure 39 is for a permanently installed terminal.

```

COM$ILUG      HARDWARE CONFIGURATION: TERMINAL (LU) DETAILS

ENTER THE REQUIRED DATA AND PRESS PF5=PROCESS

You may change the parameters for LU3PRT device at address 2 .

AUTOINST MODEL NAME.....
NETNAME (VTAM)..... S0060001
TERM ID (CICS)..... S006

SPOOLTO/SPOOLDEST.....
PRINTTO.....
LOGAPPL..... DBDCCICS

VTAM PARM TABLE..... PLU3PRT
Show VTAM PARM TABLE..... To show enter any character.
CICS TYPETERM name..... VSELU3A

Enter an X next to the terminal group the device should be defined to.
VSETERM1: X          VSETERM2: _          VSETERM3: _

PF1=HELP      2=REDISPLAY  3=END          5=PROCESS
                9=VTAM

```

Figure 39. Terminal (LU) Details Panel

The parameters of the above panel are explained in the following.

AUTOINST MODEL NAME

This parameter applies only to an autoinstall terminal. It is the name of a model terminal definition. Leaving the name blank indicates to the dialog that the terminal being defined is a *permanently installed* terminal.

NETNAME (VTAM)

This name identifies the logical unit to VTAM. The dialog supplies a default according to its naming convention. See Appendix A, "Naming Convention" on page 221.

For NETNAME (VTAM) and the following parameter, TERM ID (CICS), please note: if you change any of the defaults provided by VSE/ESA, make sure that the names or identifiers you use **are outside** of VSE/ESA's naming convention. The *Configure Hardware* could, by chance, generate duplicate names or identifiers if you choose a name which is also possible under the VSE/ESA naming convention.

TERM ID (CICS)

This 4-character name identifies the logical unit to CICS Transaction Server. A default is supplied according to the dialog's naming convention. See also the section Appendix A, "Naming Convention" on page 221.

When defining an autoinstall terminal, the parameter is optional and should only be specified if required by your installation.

SPOOLTO/SPOOLDEST

SPOOLTO is a 1 to 8-character CICS Transaction Server spool destination name. It applies only to the definition of a **display station**. It designates a terminal printer which prints list output generated by a CICS Transaction Server transaction at this display station. The list output would be routed, via the VSE/POWER list queue, to the SPOOLTO printer rather than to the system printer.

The name is identical to the SPOOLDEST name of the complementary terminal printer definition (see below).

SPOOLDEST is a 1 to 8-character CICS Transaction Server spool destination name. It applies only to the definition of a **terminal printer**. The name identifies the terminal printer as the target of a SPOOLTO specification (see above paragraph).

SPOOLTO/SPOOLDEST cannot be specified for autoinstalled devices. If you need this parameter, you must supply your own model terminal definition with this parameter using the CICS transaction CEDA.

PRINTTO

This name (sometimes called *associated printer*) points to the terminal printer that is to print the output generated by the CICS Transaction Server ISSUE PRINT command or by pressing a print request key (usually the PA1 key unless defined differently in the CICS startup job). A typical application is the copying of the current screen display. The name is the term ID on the definition for the printer.

LOGAPPL

This is the VTAM identifier of the application to which the logical unit is to be automatically logged on. For the IBM 3270 Information Display System, a default is supplied. You can set the default via the *Maintain VTAM Application Names* dialog; see "Application Major Node" on page 197.

For an *autoinstall terminal*, it is recommended **not to supply a LOGAPPL** (this does not hold, however, for a terminal printer; see below). Leaving the name blank means that the terminal will not be automatically connected to CICS during system startup. On autoinstall terminals, VSE/ESA displays the *VTAM Application Selection Menu* as initial panel. From it, users can select an VTAM application (DBDCCICS, for example). This causes VSE/ESA to display the *VSE/ESA Online* panel for signing on to the system.

As was noted already, it is recommended *not* to define terminal printers as autoinstall terminals. If you do, however, it is recommended that you **supply a LOGAPPL** value.

VTAM PARM TABLE

This is the name of a table which defines certain VTAM parameters, for example DLOGMOD or USSTAB. The dialog supplies the name of the table which is used by default.

You can specify the name of a table that you created yourself. In fact, from the current panel you can temporarily exit (by pressing the **PF9** key) into another dialog and add a new table, or alter or delete an existing one.

Show VTAM PARM TABLE

This is not truly a parameter, rather an option. By entering a nonblank character you ask for a display of the current values of the specified VTAM PARM table. From this display you may alter some table values.

Note that this selection is directed to **one particular table**. It is the same selection as 4=SHOW VTAM in the *SNA Logical Unit List*. Contrast these selections with the PF9 key selection which requests a display (*FULIST*) of **all** VTAM PARM tables.

CICS TYPETERM NAME

This names the TYPETERM definition which is to be associated with the logical units's DEFINE TERMINAL definition. The dialog supplies a default. You may override the default by another name, perhaps a TYPETERM definition of your own. Be sure the TYPETERM definition exists in your CSD file.

The CICS TYPETERM NAME can be specified only for permanently installed terminals (that is, not for autoinstall terminals).

The last row in the panel allows you to indicate, by an 'X', the CSD group(s) into which the terminal definition will be cataloged. Specifying no 'X' for any of the three groups indicates that the terminal will not be defined to CICS.

You now have completed the definition of one telecommunication device. The next two sections describe how you tell the dialog to process and catalog your input.

Getting Your Input 'Processed'

Up to now, the dialog has only *collected* the information you fed into it. Library members (containing, for example, IPL procedures or VTAM startup books) have not been changed as yet.

To achieve this, you move through the dialog in the reverse direction. Each step consists of

- Initiating the reverse move: press **PF5=PROCESS**
- Reviewing the next displayed list of your specifications
- Altering, deleting or adding to these specifications.

As an example, consider the definition of a 37xx-attached device.

Starting from one of the logical unit selection panels, the reverse movement takes you through the following panels:

Input Processed

- *Hardware Configuration: Physical Unit List*

Either press **PF6** to indicate that you want to add more physical units to **this link**. Or, if you are done with this link, press **PF5=Process**; you arrive at the

- *Hardware Configuration: NCP Line List*

Again, either press **PF6** to indicate that you want to add more links at **this communication controller**. Or, if you are done with this communication controller, press **PF5=Process**; you arrive at the

- *Hardware Configuration: NCP Name List*

Because you have entered all the information necessary for an NCP, you should now *Generate NCP* (option **6**). The dialog creates a generation job. The *Job Submission* panel appears which lets you choose between submitting the job now and/or filing it in your primary library.

Notes:

1. Make sure that **SSP and NCP are installed** as optional licensed programs before you generate your NCP. Be careful to order the proper version, according to the guideline in "IBM 37xx Communication Controller Support" on page 31.
2. If the generation is for a large NCP, you may need more work file space than the generated job provides. Data which cannot be accommodated in the normal way will overflow into the work file DBWRKFL. This workfile is mandatory if your configuration includes an NCP/Token-Ring interconnection (NTRI). Use skeleton SKNCPWKF from library 59 to define this workfile. The skeleton is shown in Figure 119 on page 245.

Also, in an exceptional case, the BG partition may be too small for running the generated job. For detailed information refer to the topic "Generating and Loading under VSE" in the IBM manual *NCP Generation and Loading Guide*, order number SC30-3348.

In addition to the job, the dialog creates in library 51 CICS Transaction Server objects plus VTAM and NCP definitions. **Prior to setting your network into operation, you must assemble and catalog these objects.** For more information, see "Cataloging the Configuration" on page 85.

After exiting from the *Job Submission* panel, you come back to the

- *NCP Name List*

Press **PF5** to arrive at the

- *Hardware Configuration: Unit Address List*

This is the panel you started out with. Pressing **PF5=Process** leads you into the *Hardware Configuration: Catalog Startup Members* panel. The subject of cataloging will be taken up below, in section "Cataloging the Configuration" on page 85.

Cataloging the Configuration

After you provided definitions via the Hardware Configuration dialog, the information has only been *collected*. Now this information must be *processed* leading to newly cataloged startup members.

Specifically, the following categories are candidates:

- IPL procedures
- VTAM startup books
- Definitions in the CICS System Definition (CSD) file.

Part of the cataloging will be handled through the *Hardware Configuration: Catalog Startup Members* dialog; see the following section.

Another part is accomplished by submitting a generation job: the NCP generation job. This will be discussed in “Cataloging via Generation Job” on page 87.

Cataloging via Dialog

The *Hardware Configuration: Catalog Startup Members* panel (see Figure 40 on page 86) allows you to catalog specific objects.

After receiving a catalog request, the dialog processes **all the information** that it has gathered for a specific object. This means: if you had just configured a part of your telecommunications environment but had configured and cataloged another part earlier, the dialog combines the "earlier" and the "fresh" parts into one catalog operation.

For example, from an earlier configuration, the CSD group VSETERM1 may contain entries that were already assembled and cataloged. At a later time, you added more terminals. When you now request the cataloging of

CICS CSD Group for terminals - VSETERM1

the dialog processes the entire group, thereby recataloging the earlier definitions.

Note that in the category of **remote** terminals, the dialog offers the cataloging of VTAM books for **ICA-attached** terminals only.

The cataloging of VTAM books for **NCP-attached** terminals is part of the NCP generation, which is triggered by a job submission (see the following section). In fact, the panel in the figure below is taken immediately after definition of an NCP configuration (and nothing else before). You can see that the dialog *suggests*, by an 'X' in the pertinent line, to catalog only IPL procedures and the CSD group VSETERM1 but no VTAM books for terminals. These will be cataloged by submitting an NCP generation job.

Cataloging the Configuration

```
ADM$CRE1      HARDWARE CONFIGURATION: CATALOG STARTUP MEMBERS

Press ENTER to catalog the objects marked by an X. You may add or delete
an X as needed.

      X      IPL Procedures
      X      VTAM Book with Startup Options
      X      VTAM Books for Model Terminal Support
      X      VTAM Book for Local Non-SNA Terminals
      X      VTAM Book Local SNA Terminals
      X      VTAM Books for ICA attached Terminals
      -      VTAM Books for OSA or 3172 attached Terminals
      -      CICS CSD Group for terminals-VSETERM1
      -      CICS CSD Group for terminals-VSETERM2
      -      CICS CSD Group for terminals-VSETERM3

PF1=HELP      2=REDISPLAY  3=END
```

Figure 40. Catalog Startup Members

After you exit the above panel, the *Job Disposition* panel appears. Assuming you leave the suggested job name unchanged, a job is created which looks like the one in Figure 41. The job catalogs a new IPL procedure which now contains ADD statements for the devices that you just added.

It also includes (see the 6th line) another member, DTRCSDJ1. This is a sequence of job steps to store the terminal definitions into the CICS Transaction Server CSD group VSETERM1.

```
* $$ JOB JNM=STARTUP,DISP=D,PRI=3, C
* $$ NTFY=YES, C
* $$ LDEST=*, C
* $$ CLASS=0
// JOB STARTUP CATALOG STARTUP MEMBERS AND PHASES
* $$ SLI ICCF=(DTRCSDJ1),LIB=(51)
// EXEC LIBR,PARM='MSHP'
ACCESS SUBLIB=IJSYSRS.SYSLIB
* $$ SLI ICCF=(IPLPROC),LIB=(51)
CONNECT SUBLIB=IJSYSRS.SYSLIB:PRD2.SAVE
COPY $IPLESA.PROC REPLACE=YES
DELETE VTMMDL.SAVE
RENAME VTMMDL.B:VTMMDL.SAVE
CATALOG VTMMDL.B REPLACE=YES
* $$ SLI ICCF=(VTMMDL),LIB=(51)
/+
/*
/&
* $$ EOJ
```

Figure 41. Job STARTUP

Summary of VTAM and CICS Startup Members

Figure 42 lists the members for VTAM and CICS terminal definitions.

VTAM Books:

1. VTMNSNA for local non-SNA terminals.
2. VTMSNA for local SNA terminals.
3. VTMC1, VTMC3, and VTMSW1 for remote SNA terminals.
4. VTMMDL and VTMA1 for autoinstall model terminal support books containing definitions for permanently-installed terminals that are to be stored into the CICS System Definition (CSD) file.
5. VTMRxx for ICA-attached token ring definitions.
6. Other VTAM books produced due to processing of Option 6 (GENERATE NCP):
 - ncpnameV - for major node definition of switched line
 - ncpnameM through ncpnameT - for major node definitions of NTRI lines.

Note: 'ncpname' is the 7-character name you selected when generating the NCP.
7. Ocuusuba and VTMPU for ICA-attached X.25 VTAM definitions (where 'cuu' is the channel address, and 'suba' is the subarea of the host).
8. VTMOA for defining the medium for OSA or 3172.
VTMOA2 for defining the switched major node, with all PUs and LUs, for OSA or 3172.

CICS/VSE Definitions for Permanently Installed Terminals:

1. The CSD terminal groups VSETERM1, VSETERM2, and VSETERM3. Members associated with group (where n=1, 2, or 3):
 - a. DTRCSDnL for local non-SNA terminals.
 - b. DTRCSDnS for local SNA terminals.
 - c. DTRCSDnR for remote SNA terminals, attached via ICA.
 - d. DTRCSDnN for remote SNA terminals, controlled by NCP (more CSD definitions for NCP are included by this member).
 - e. DTRCSDnO for OSA or 3172 attached terminals
2. DTRCSDJ1, DTRCSDJ2, or DISCSDJ3, for the job that catalogs new CICS terminals into the CSD groups VSETERM1, VSETERM2, or VSETERM3, respectively.

Figure 42. Hardware Configuration Startup Members

Cataloging via Generation Job

In the *Hardware Configuration: NCP Name List* panel, you should have requested an NCP generation job (see page 84). If you didn't submit the job right then, you must do it at some time prior to setting your system into operation.

Assuming that you named your NCP 'NCPNEW7' (as part of "Describing the NCP Link(s)" on page 62), the generation job is contained in member NCPNEW7J of your primary library. For an example, see Figure 43 on page 88.

Cataloging the Configuration

```
* $$ JOB JNM=NCPNEW7J,DISP=D,PRI=3,
* $$ NTFY=YES,
* $$ LDEST=*,
* $$ CLASS=0
* $$ LST      DISP=D,CLASS=A
// JOB NCPNEW7J
* *****
* THIS JOB ASSEMBLES AN NCP SOURCE PROGRAM CONTAINING NCP GENERATION
* MACRO INSTRUCTIONS BY USING NDF.
*
* THIS JOB ALSO CATALOGS THE NCP SOURCE PROGRAM FOR USE AS AN
* ACF/VTAM* MAJOR NODE DEFINITION
* *****
// LIBDEF *,SEARCH=(PRD2.COMM,PRD2.COMM2),TEMP
*
* THE SYSPCH FILE IS USED AS THE PUNCH CODE OUTPUT FILE BY NDF.
* IT WILL BE USED AS THE INPUT FILE FOR THE TABLE ASSEMBLIES.
*
// DLBL IJSYSPH,'TMP.FILE',0,SD
// EXTENT SYSPCH,SYSWK1,,,1,375
// ASSGN SYSPCH,DISK,PERM,VOL=SYSWK1,SHR
// DLBL IJSYSNW,'NEWDEFN',0001,SD
// EXTENT SYS001,SYSWK1,,,9075,60
// ASSGN SYS001,DISK,PERM,VOL=SYSWK1,SHR
*
* IF THE GENERATION FAILS BECAUSE THE VSAM WORK FILE DBWRKFL IS
* MISSING, YOU CAN USE SKELETON SKNCPWK IN ICCF LIBRARY 59 TO
* CREATE THE WORK FILE.
*
// EXEC  ICNDNDF,SIZE=AUTO
* $$ SLI ICCF=(NCPNEW7),LIB=(51)
/*
// IF $RC GE 4 THEN
// GOTO CLSPCH
CLOSE SYSPCH,FED
* DEFINITION OF THE INPUT FILE FOR ALL 3 ASSEMBLIES
// DLBL IJSYSIN,'TMP.FILE'
// EXTENT SYSIPT
// ASSGN SYSIPT,DISK,PERM,VOL=SYSWK1,SHR
* DEFINITION OF THE PUNCH CODE OUTPUT FILE FOR ALL 3 ASSEMBLIES
*
// DLBL IJSYSPH,'TABLE.TEXT',0,SD
// EXTENT SYSPCH,SYSWK1,,,377,375
// ASSGN SYSPCH,DISK,PERM,VOL=SYSWK1,SHR
// OPTION DECK,SXREF
// EXEC IFZASM,SIZE=200K
// IF $RC GE 4 THEN
// GOTO CLSBOTH
// EXEC IFZASM,SIZE=200K
// IF $RC GE 4 THEN
// GOTO CLSBOTH
```

Figure 43 (Part 1 of 2). Job to Generate an NCP

```

// EXEC IFZASM,SIZE=200K
// IF $RC GE 4 THEN
// GOTO CLSBOTH
CLOSE SYSIPT,FEC
CLOSE SYSPCH,FED
* LIBRARIAN USED TO CATALOG THE TABLE.TEXT FILES INTO OBJ MEMBERS
*
* THE PUNCH CODE OUTPUT FILE FROM THE TABLE ASSEMBLIES SERVES AS A
* INPUT FILE FOR THE LIBRARIAN
// DLBL IJSYSIN,'TABLE.TEXT'
// EXTENT SYSIPT
// ASSGN SYSIPT,DISK,PERM,VOL=SYSWK1,SHR
// EXEC LIBR,PARM='ACC S=PRD2.COMM2'
// IF $RC GT 0 THEN
// GOTO CLSIPT
// LIBDEF PHASE,CATALOG=PRD2.COMM2
// OPTION CATAL
    ACTION MAP,NOAUTO
    INCLUDE INLINKED
// EXEC LNKEDT
CLOSE SYSIPT,FEC
// DLBL IJSYSIN,'NEWDEFN',0001,SD
// EXTENT SYSIPT,SYSWK1,,,9075,60
// ASSGN SYSIPT,DISK,PERM,VOL=SYSWK1,SHR
// EXEC LIBR,PARM='A S=PRD2.CONFIG;CATALOG NCPNEW7.B R=Y EOD=*'
/*
// IF $RC GT 0 THEN
// GOTO CLSIPT
CLOSE SYSIPT,FEC
// EXEC LIBR
ACCESS S=PRD2.CONFIG
CATALOG NCPNEW7M.B    REPLACE = YES
* $$ SLI ICCF=(NCPNEW7M),LIB=(51)
/+
/*
// EXEC  LIBR
ACCESS SUBLIB=PRD2.CONFIG
CATALOG NCPNEW7V.B    REPLACE=YES
* $$ SLI ICCF=(NCPNEW7V),LIB=(51)
/+
/*
// GOTO $EOJ
/. CLSPCH
CLOSE SYSPCH,FED
// GOTO $EOJ
/. CLSBOTH
CLOSE SYSPCH,FED
/. CLSIPT
CLOSE SYSIPT,FEC
/&
* $$ EOJ

```

Figure 43 (Part 2 of 2). Job to Generate an NCP

The job NCPNEW7J

Cataloging the Configuration

- assembles an NCP source program which contains NCP generation macro instructions
- catalogs the resulting phase in sublibrary PRD2.COMM2, and
- catalogs VTAM definitions in sublibrary PRD2.CONFIG.

Input are members with name prefix NCPNEW7 which contain NCP generation macro instructions **and other VTAM** definitions. The Hardware Configuration dialog had created those members as a result of your input.

Note: If you want to define more than one NCP, make sure that the resource names of all NCPs are unique. This means that you must make the appropriate changes in the NCPNEW7 members prior to cataloging the definitions.

After completion of job NCPNEW7J, all NCP **and VTAM** definitions are cataloged.

For a very large NCP, the generation job may need the special workfile DBWRKFL. This workfile is mandatory if your configuration includes an NCP/Token-Ring interconnection (NTRI). Use skeleton SKNCPWKF from library 59 to define this workfile. The skeleton is shown in Figure 119 on page 245.

To **activate** the new NCP, you either use VTAM operator commands. Or you add the NCPNEW7 members as VTAM major nodes to the *VTAM configuration list* ATCCONxx (see “Configuration List” on page 195). The new NCP will then be activated at the next startup of VTAM.

Programming Interface Information

Autoinstall Exit Program IESZATDX

As was briefly mentioned in section “VTAM and CICS Transaction Server Parameters” on page 77, a CICS Transaction Server *autoinstall exit program* gets control after a logon request is received from an autoinstall terminal.

The name of the VSE/ESA version is IESZATDX and is defined in the AUTOINST parameter of table DFHSITSP. It has been modified for VSE/ESA. IESZATDX is automatically activated when a user logs on from a terminal defined to VTAM but unknown to CICS. This allows you to include *user modifications* required for your environment. User modifications may also be implemented by providing your own user-written installation-wide exit routine.

Note: Starting with VSE/ESA 2.4, IESZATDX also supports autoinstall for LU6.2 parallel (APPC) sessions.

The exit does the following:

- Retrieves the autoinstall model name, as defined via dialog, from the VTAM CINIT information.
- Retrieves the associated printer ID, as defined via dialog, from the VTAM CINIT information. If not available, no printer ID will be passed to CICS.
- Retrieves the CICS terminal ID if available from the VTAM CINIT information. If not available, the exit will generate a CICS terminal ID. According to the VSE/ESA naming conventions, this is an A followed by a 3-digit number.

If IESZATDX needs to generate a CICS Transaction Server terminal ID, it uses A as the first character. You can change this prefix to any other letter by locating and changing the entry PREFIX in program IESZATDX. This might be necessary in an environment with communicating CICS Transaction Server systems where unique terminal IDs are required.

- If IESZATDX does not find an autoinstall model name in the VTAM CINIT information or if the model name found is VSE51DEF, it selects the best fitting model from the VSE/ESA-supplied models.

For VTAM-to-VTAM network connections where the terminal owning CICS runs with a VTAM version prior to 3.3, no autoinstall information can be stored in CINIT. The model VSE51DEF has therefore been introduced for autoinstall terminals which are migrated to VSE/ESA from VSE/SP Version 4. Figure 44 on page 92 shows the VSE/SP Version 4 criteria used by IESZATDX for selecting terminal models and printer models.

For a detailed description, refer to the comment section of program IESZATDX. The source code of program IESZATDX is available in VSE/ICCF library 59 as member IESZATDX. Note also that for VSE/ESA systems running under VM the "Reset to VM" function only works correctly if the VTAM netname follows the VSE/ESA naming convention.

Note: If the CICS Emergency Restart is used for autoinstall terminals which make use of the IBM-supplied autoinstall exit program IESZATDX, the Temporary Storage queue IEZATDNM must be defined as recoverable. You do this by adding the appropriate entry to the Temporary Storage Table (DFHTSTSP). The source code of this table is available in VSE/ICCF library 59 as member DFHTSTSP.

For a general description of autoinstall exit programs, refer to the IBM manual *CICS Customization Guide* SC33-0707 .

TERMINAL MODELS:			
Device	Local nonSNA	Local/Remote	
Characteristics	Terminal	SNA Terminal	
QUERY SUPPORT:			
Any number of lines	VSE3278Q	VSELU2Q	
NO QUERY SUPPORT:			
27 lines (alternate)	VSE32785	VSELU2D	
32 lines (alternate)	VSE32783	VSELU2B	
43 lines (alternate)	VSE32784	VSELU2C	
24 lines	VSE32782	VSELU2A	
24 lines EDS	VSE32792	VSELU2E	
32 lines (alternate) EDS	VSE32793	VSELU2F	
PRINTER MODELS:			
Device	Local nonSNA	Local/Remote	
Characteristics	Terminal	SNA Terminal	
QUERY SUPPORT:			
LU type: 1 (SCS)	+++	VSESCSPQ	
LU type: 3	+++	VSELU3Q	
LU type: none	VSEDSQP	+++	
NO QUERY SUPPORT:			
LU type: 1 (SCS)	+++	VSESCSPA	
LU type: 3	+++	VSELU3A	
LU type: none	VSEDSQP	+++	

Figure 44. Parameter Identification for Autoinstall Terminals

End of Programming Interface Information

Reconfiguring without Shutting down Subsystems

In VSE/ESA you can add or change networking definitions, for example terminal definitions, without shutting down the subsystems CICS or VTAM.

The following procedure shows you how a new terminal is added and activated at a local SNA control unit.

1. Go through the Hardware Configuration dialog to add the terminal. Then run the job which was generated after you pressed PF5 (*PROCESS*) in the *Catalog Startup Members* panel.
2. For a
permanently installed terminal:

INSTALL the group where the terminal was added (VSETERM1 for example) using the CICS transaction CEDA. Option 7 of the VSE/ESA *Function Selection* panel gives you easy access to "CICS Supplied Transactions." Enter for example:

```
CEDA INSTALL GROUP(VSETERM1)
```

CICS will tell you that you have to set resources out-of-service.

For an **autoinstall terminal** you do not have to do anything extra for CICS.

3. Refresh the tables VTMMDL and VTMASL by entering

```
MODIFY NET, TABLE, NEWTAB={VTMMDL|VTMASL}, OPTION=LOAD
```

4. Deactivate and reactivate the VTAM major node where the terminal is defined: at the operator console enter

```
V NET, INACT, ID=VTMSNA
```

```
V NET, ACT, ID=VTMSNA
```

For **non-SNA terminals** please note:

You can change the CICS and VTAM definitions of non-SNA terminals using the same procedure as above (except that the non-SNA major node has the ID VTMSNA). But you **cannot add** a non-SNA terminal, because this requires a re-IPL with a corresponding IPL ADD statement.

Recovering from Incorrect CICS or VTAM Definitions

The situation might occur where your input to the Hardware Configuration dialog results in incorrect CICS or VTAM definitions. If you are unable to identify the cause of the problem, you might consider performing a reIPL followed by a basic start.

This is described in the IBM manual *VSE/ESA Operation*.

Configuration Examples

The following sections present three example cases:

- an OSA-attached configuration
- an ICA-attached configuration
- a NCP-attached configuration.

If you are working at a terminal with VSE/ESA online, you may want to actually repeat the example sessions at your terminal. This would help you get familiar with the Hardware Configuration dialogs. But if you are just reading, it is still worth your while to check the source members which result from the assumed input.

OSA-Attached Configuration Example

This section picks up on the example that was briefly presented in section “Connecting a LAN to an OSA-2 or 3172” on page 46. Figure 45 illustrates the example configuration.

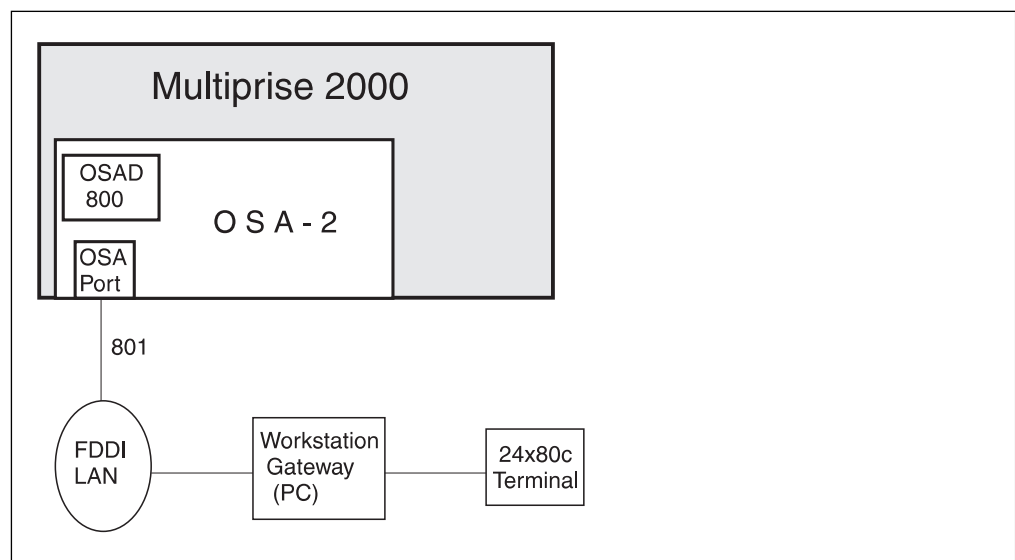


Figure 45. Example Configuration - OSA-Attached Links

The above example shows the following configuration:

- A VSE Host (an IBM Multiprise 2000, in this example) with **OSAD** installed (at address 800).
- An FDDI LAN attached to the VSE Host (at address 801).
- A Workstation Gateway attached to the FDDI LAN.
- A 24x80c Terminal attached to the Workstation Gateway.

This section describes

1. The sequence of steps you have to go through and your input at each step.
2. The result, that is: the contents of the library members which the dialog creates based on your input.

Proceeding through the Dialog

Note: The term 'HC' used within a panel name is an abbreviation for 'Hardware Configuration.'

Name of panel	Your Input	
HC: UNIT ADDRESS LIST	...PF6	for ADD ADDRESS
HC: ADD A DEVICE	...800	for STARTING ADD
	OSAD	for DEVICE NAME
HC: UNIT ADDRESS LIST	...PF6	for ADD ADDR
HC: ADD A DEVICE	...801	for STARTING Add
	OSA	for DEVICE NAME
HC: LAN LIST	...PF6	for ADD LAN
SELECTION LIST: MEDIUM TYPE .	...1	for FDDI LAN
HC: DEFINE LAN	...1	for ADAPTER NUMBER
HC: LAN LIST	...3	for FOR FURTHER PROCESSING (of 801)
HC: PUS AT A LAN	...PF6	for ADD PU
HC: SUBSYSTEM GROUP	...1	for DISPLAY AND PRINTER SYSTEM
HC: DISPLAY/PRINTER CU	...2	for PC gateway
HC: PU IDENTIFICATION	...80010000	for LAN ADDRESS/2
	80001	for IDNUM PARAMETER
HC: ADD DEVICE(S)	...2	for STARTING ADDRESS
	24x80C	for DEVICE NAME
HC: SNA LOGICAL UNIT LIST ...	...PF5	for PROCESS
HC: PUS AT A LAN	...PF5	for PROCESS
HC: LAN LIST	...PF5	for PROCESS
HC: UNIT ADDRESS LIST	...PF5	for PROCESS
HC: CATALOG STARTUP MEMBERS .	...x	for IPL Procedures
	x	for VTAM Books for Model Terminal Support
	x	for VTAM Books for ICA attached Terminals
	x	for VTAM Books for OSA or 3172 attached Terminals

Resulting Library Members

The above dialog ends with the *Job Disposition* panel. You can now submit the catalog job. For its content see Figure 46 on page 96.

Configuration Examples - OSA

```
* $$ JOB JNM=STARTUP,DISP=D,PRI=3, C
* $$ NTFY=YES, C
* $$ CLASS=0
* $$ LST DISP=H
// JOB STARTUP CATALOG STARTUP MEMBERS AND PHASES
// EXEC LIBR,PARM='MSHP'
ACCESS SUBLIB=IJSYSRS.SYSLIB
* $$ SLI ICCF=(IPLPROC),LIB=(51)
CONNECT SUBLIB=IJSYSRS.SYSLIB:PRD2.SAVE
COPY $IPLESA.PROC REPLACE=YES
ACCESS SUBLIB=PRD2.CONFIG
* $$ SLI ICCF=(VTMOSA),LIB=(51)
DELETE VTMOSA2.SAVE
RENAME VTMOSA2.B:VTMOSA2.SAVE
CATALOG VTMOSA2.B REPLACE=YES
* $$ SLI ICCF=(VTMOSA2),LIB=(51)
/+
DELETE VTMDL.SAVE
RENAME VTMDL.B:VTMDL.SAVE
CATALOG VTMDL.B REPLACE=YES
* $$ SLI ICCF=(VTMDL),LIB=(51)
/+
/*
/&
* $$ E0J
```

Figure 46. Example of Catalog Startup Members (OSA)

The catalog job *includes* from library 51 several members which the dialog had created:

- IPLPROC

IPLPROC contains a job step which catalogs the IPL procedure \$IPLESA.PROC in the system library. Due to the above dialog, the IPL procedure will contain the statements

```
ADD 800,OSAD
ADD 801,OSA
```

for the FDDI LAN attachments you just configured.

- VTMOSA, VTMOSA2, and VTMDL.

These members contain VTAM definitions for the FDDI LAN (VTMOSA), the attached LU and PU (VTMOSA2), and the terminal models used (VTMDL). Their content is shown in Figure 47 on page 97. As a result of the catalog job, the VTAM books will be cataloged in sublibrary PRD2.CONFIG.

```

VTMOSA in ICCF lib 51
*****
DELETE VTM0801.SAVE
RENAME VTM0801.B:VTM0801.SAVE
CATALOG VTM0801.B REPLACE=YES
Y8010001 VBUILD TYPE=XCA
U8010001 PORT MEDIUM=FDDI,      TYPE OF LAN                X
      SAPADDR=4,      SERVICE ACCESS POINT ADDRESS        X
      ADAPNO=001,     ADAPTER NUMBER                      X
      CUADDR=801,     CHANNEL UNIT ADDRESS                X
      TIMER=60
Q8010001 GROUP DIAL=YES,      SWITCHED PERIPHERAL NODE        X
      ISTATUS=ACTIVE
M0010001 LINE  ISTATUS=ACTIVE
F0010001 PU    ISTATUS=ACTIVE
/+

```

Figure 47 (Part 1 of 2). Example of Generated VTAM Books (OSA)

```

VTMOSA2 in ICCF lib 51
*****

*
*****
* OSA or 3172 RELATED SWITCHED MAJOR NODE                *
*****
*
      VBUILD TYPE=SWNET,MAXGRP=2,MAXNO=7
J0010001 PU  ADDR=C1,                                X
      IDBLK=017,      identification block                X
      IDNUM=80001,    identification number                X
      DISCNT=NO,      VTAM does not hang up                X
      ISTATUS=ACTIVE,PACING=0,VPACING=0,                  X
      PUTYPE=2,       SNA cluster controller                X
      MAXDATA=265,    max amount of data for PU            X
      MAXOUT=7,       max no of PIUs send before response X
      MAXPATH=1,      max no of dial paths                  X
      SAPADDR=4       service access point address
      PATH DIALNO=0104400080010000,                      X
      GRPNM=Q8010001
*
R0010001 LU  LOCADDR=2,DLOGMOD=SP3272ES,                X
      ISTATUS=ACTIVE,MODETAB=IESINCLM,                    X
      MDLTAB=VTMMDL,                                       X
      MDLENT=VSELU2E,                                       X
      SSCPFM=USSSCS,USSTAB=VTMUSSTR

```

Figure 47 (Part 2 of 2). Example of Generated VTAM Books (OSA)

ICA-Attached Configuration Example

This section picks up on the example that was briefly presented in section “Defining an Integrated Communication Adapter link” on page 50. Figure 48 illustrates the example configuration.

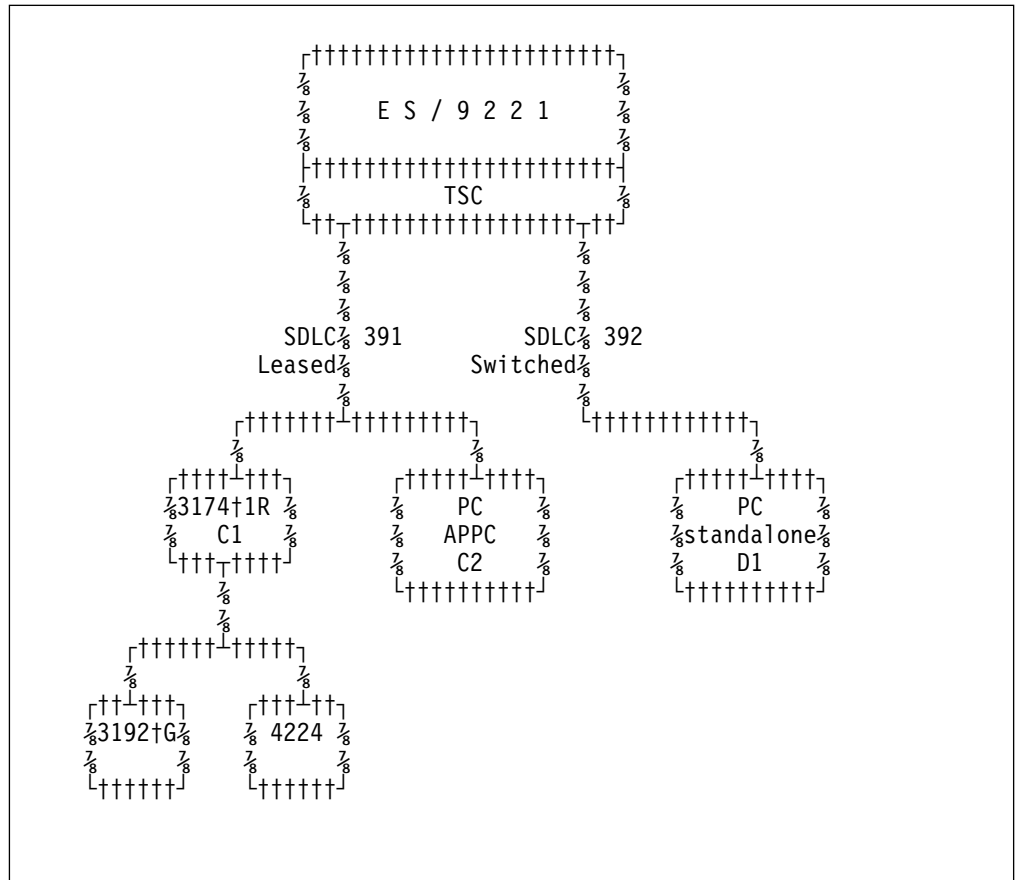


Figure 48. Example Configuration - ICA-Attached Links

The above example shows the following configuration:

- A TSC within an IBM ES/9221.
- Two SDLC lines attached at the TSC: one leased line at address 391, one switched line at address 392. The leased line serves two physical units:
 - An IBM 3174-1R control unit with SDLC station address C1.
 - An IBM workstation with APPC. Its SDLC station address is C2.

The 3174-1R serves two logical units: an IBM 3192-G Display Station and an IBM 4224 printer.

- An IBM workstation at the switched line. Its SDLC station address is D1.

This section describes

1. The sequence of steps you have to go through and your input at each step.
2. The result, that is: the contents of the library members which the dialog creates based on your input.

Proceeding through the Dialog

Note: The term 'HC' used within a panel name is an abbreviation for 'Hardware Configuration.'

Name of Panel	Your Input
HC: UNIT ADDRESS LIST	..PF6 for ADD ADDR
HC: ADD A DEVICE	..391 for STARTING ADDRESS icasdlcl for DEVICE NAME
HC: ICA LINE LIST	..3 for FOR FURTHER PROCESSING (of link 391)
HC: PHYSICAL UNIT LIST	..PF6 for ADD PU
HC: SUBSYSTEM GROUP	..1 for Display and Printer System
HC: DISPLAY/PRINTER CU	..15 for 3174 Model xxR
HC: PU STATION ADDRESS	..C1 for SDLC ADDRESS
HC: ADD DEVICE(S)	..2 for STARTING ADDRESS 32X80CP for DEVICE NAME (generic for 3192-G)
HC: SNA LOGICAL UNIT LIST	..PF6 for ADD LU
HC: ADD DEVICE(S)	..3 for STARTING ADDRESS scsprt for DEVICE NAME (generic for 4224)
HC: SNA LOGICAL UNIT LIST	..PF5 for PROCESS
HC: PHYSICAL UNIT LIST	..PF6 for ADD PU
HC: SUBSYSTEM GROUP	..2 for Intelligent System
HC: INTELLIGENT SYSTEM	..1 for Personal Computer (with APPC)
HC: PU STATION ADDRESS	..C2 for SDLC ADDRESS
HC: ADD DEVICE(S)	..1 for STARTING ADDR 24X80C for DEVICE NAME (generic for DFT PC)

Configuration Examples - ICA

Name of Panel	Your Input
HC: SNA LOGICAL UNIT LIST	..PF5 for PROCESS
HC: PHYSICAL UNIT LIST	..PF5 for PROCESS
HC: ICA LINE LIST	..PF5 for PROCESS
HC: UNIT ADDRESS LIST	..PF6 for ADD ADDR
HC: ADD A DEVICE	..392 for STARTING ADDRESS icasdlcs for DEVICE NAME
HC: ICA LINE LIST	..3 for FOR FURTHER PROCESSING (of link 392)
HC: PHYSICAL UNIT LIST	..PF6 for ADD PU
HC: SUBSYSTEM GROUP	..1 for Display and Printer System
HC: DISPLAY/PRINTER CU	1 for PS/2 PC (standalone)
HC: PU IDENTIFICATION	..d1 for SDLC address 017 for IDBLK 0c1f3 for IDNUM
HC: ADD DEVICE(S)	..2 for STARTING ADDRESS 24X80C for DEVICE NAME (generic for DFT PC)
HC: SNA LOGICAL UNIT LIST	..blanks for AUTOINST MODEL 2 for ALTER
HC: TERMINAL (LU) DETAILS	..T100 for PRINTTO PF5 for PROCESS
HC: SNA LOGICAL UNIT LIST	..PF5 for PROCESS
HC: PHYSICAL UNIT LIST	..PF5 for PROCESS
HC: ICA LINE LIST	..PF5 for PROCESS
HC: UNIT ADDRESS LIST	..PF5 for PROCESS
HC: CATALOG STARTUP MEMBERS ...	..x for IPL Procedures x for VTAM Books for Model Terminal Support x for VTAM Books for ICA attached Terminals x for CICS CSD Group for terminals - VSETERM1

Resulting Library Members

The above dialog ends with the *Job Disposition* panel. You can now submit the catalog job. For its content see Figure 49 on page 101.

```

* $$ JOB JNM=STUPICA,DISP=D,PRI=3,
* $$ NTFY=YES,
* $$ LDEST=*,
* $$ CLASS=0
// JOB STUPICA CATALOG STARTUP MEMBERS AND PHASES
* $$ SLI ICCF=(DTRCSDJ1),LIB=(51)
// EXEC LIBR,PARM='MSHP'
ACCESS SUBLIB=IJSYSRS.SYSLIB
* $$ SLI ICCF=(IPLPROC),LIB=(51)
CONNECT SUBLIB=IJSYSRS.SYSLIB:PRD2.SAVE
COPY $IPLESA.PROC REPLACE=YES
ACCESS SUBLIB=PRD2.CONFIG
DELETE VTMCA1.SAVE
RENAME VTMCA1.B:VTMCA1.SAVE
CATALOG VTMCA1.B REPLACE=YES
* $$ SLI ICCF=(VTMCA1),LIB=(51)
/+
DELETE VTMCA3.SAVE
RENAME VTMCA3.B:VTMCA3.SAVE
CATALOG VTMCA3.B REPLACE=YES
* $$ SLI ICCF=(VTMCA3),LIB=(51)
/+
DELETE VTMSW1.SAVE
RENAME VTMSW1.B:VTMSW1.SAVE
CATALOG VTMSW1.B REPLACE=YES
* $$ SLI ICCF=(VTMSW1),LIB=(51)
/+
DELETE VTMDL.SAVE
RENAME VTMDL.B:VTMDL.SAVE
CATALOG VTMDL.B REPLACE=YES
* $$ SLI ICCF=(VTMDL),LIB=(51)
/+
/*
/&
* $$ E0J

```

Figure 49. Example of Catalog Startup Members (ICA)

The catalog job *includes* from library 51 several members which the dialog had created:

- IPLPROC
IPLPROC contains a job step which catalogs the IPL procedure \$IPLESA.PROC in the system library. Due to the above dialog, the IPL procedure will contain the statements
ADD 391,3705,10
ADD 392,3705,10
for the SDLC links you just configured.
- DTRCSD1R (via member DTRCSDJ1)
This member contains the DEFINE TERMINAL statements for the *permanently installed* devices, specifically the printer at line 391 and the workstation at line 392. For the content see Figure 50 on page 102. As a result of the catalog job, the terminal definitions will be stored in the specified CSD group.

```
*****
* I C A   CONTROLLED REMOTE TERMINAL ENTRIES                               *
*****
      DC C'DEFINE TERMINAL(R004) GROUP(VSETERM1) '
      DC C'TYPETERM(VSELU2E) '
      DC C'NETNAME(R0040001) '
      DC C'PRINTER(T100) '
      DC X'FFFFFFFF'
      DC C'DEFINE TERMINAL(R002) GROUP(VSETERM1) '
      DC C'TYPETERM(VSESCSPA) '
      DC C'NETNAME(R0020001) '
      DC C'SPOOLPRTRSL(1) '
      DC C'OPERRSL(1) '
      DC X'FFFFFFFF'
```

Figure 50. Example of CSD Terminal Definitions (Member DTRCSD1R)

- VTMCA1, VTMCA3, VTMSW1 and VTMMDL

These members contain VTAM definitions for the two channel attachment (CA1 and CA3) major nodes and for the one switched (SW1) major node, plus the table of autoinstall model names. Their content is shown in Figure 51 on page 103. As a result of the catalog job, the VTAM books will be cataloged in sublibrary PRD2.CONFIG.

```
VTMCA1  VBUILD TYPE=CA
GICA0001 GROUP LNCTL=SDLC,
          DIAL=NO,
          ISTATUS=ACTIVE
L3910001 LINE ADDRESS=391,
              MAXBFRU=(2,8), ISTATUS=ACTIVE
C3V50001 PU  ADDR=C1,
              PUTYPE=2, MAXDATA=265
R0010001 LU  LOCADDR=2,
              DLOGMOD=SP3273ES,
              MODETAB=IESINCLM,
              USSTAB=VTMUSSTR,
              PACING=0, VPACING=0,
              MDLTAB=VTMMDL,
              MDLENT=VSELU2G,
              ISTATUS=ACTIVE, SSCPFM=USSSCS
R0020001 LU  LOCADDR=3,
              DLOGMOD=SPSCSPRT,
              LOGAPPL=DBDCCICS,
              MODETAB=IESINCLM,
              PACING=0, VPACING=0,
              ISTATUS=ACTIVE, SSCPFM=USSSCS
C70X0001 PU  ADDR=C2,
              PUTYPE=2, MAXDATA=265
R0030001 LU  LOCADDR=1,
              DLOGMOD=SP3272ES,
              MODETAB=IESINCLM,
              USSTAB=VTMUSSTR,
              PACING=0, VPACING=0,
              MDLTAB=VTMMDL,
              MDLENT=VSELU2E,
              ISTATUS=ACTIVE, SSCPFM=USSSCS
```

Figure 51 (Part 1 of 2). Example of Generated VTAM Books (ICA)

Configuration Examples - ICA

```
VTMCA3  VBUILD TYPE=CA
HICA0001 GROUP LNCTL=SDLC,
          DIAL=YES,
          ISTATUS=ACTIVE
L3920001 LINE ADDRESS=392,ANSWER=ON,CALL=IN,
          MAXBFRU=(2,8),ISTATUS=ACTIVE
Z0PE0001 PU   ISTATUS=ACTIVE

. . .

VTMMDL  MDLTAB
VSELU2G MDLENT MODEL=VSELU2G
VSELU2E MDLENT MODEL=VSELU2E

. . .

VTMSW1  VBUILD TYPE=SWNET
*
*****
*   PC PU AND LU SPECIFICATIONS
*****
*
CSG10001 PU   ADDR=D1,VPACING=0,
              IDBLK=017,IDNUM=0C1F3,MAXPATH=256,PACING=0,
              PUTYPE=2,MAXDATA=265
*
R0040001 LU   LOCADDR=2,DLOGMOD=SP3272ES,LOGAPPL=DBDCCICS,
              ISTATUS=ACTIVE,MODETAB=IESINCLM,
              SSCPFM=USSSCS,USSTAB=VTMUSSTR
```

Figure 51 (Part 2 of 2). Example of Generated VTAM Books (ICA)

37xx(NCP)-Attached Configuration Example

Figure 52 illustrates the example configuration.

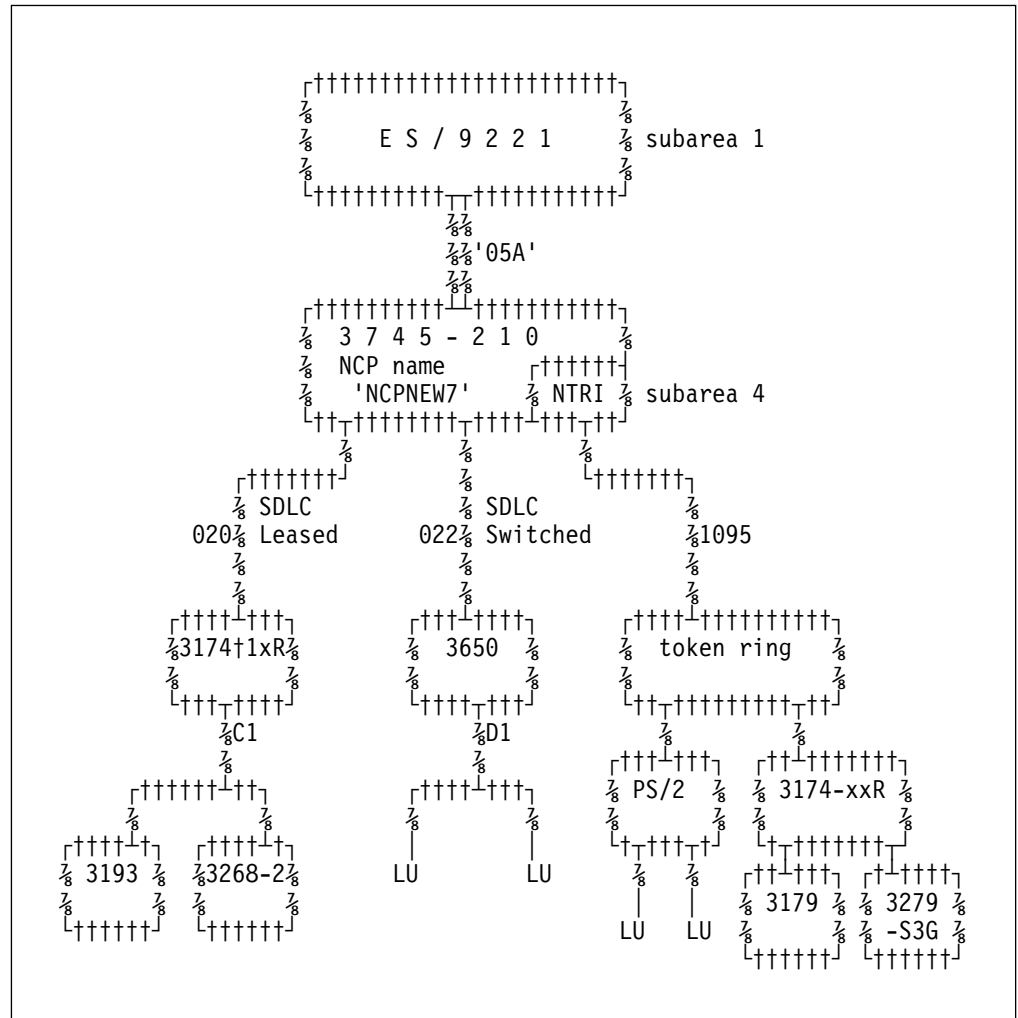


Figure 52. Example Configuration - 37xx(NCP)-Attached Links

The above example shows the following configuration:

- A 3745-210 communication controller at channel unit address 05A.
- A remote control unit IBM 3174-1xR at link 020. Its SDLC station address is C1. It serves two logical units: an IBM 3193 display station and an IBM 3268-2 printer, both **permanently installed** (not autoinstalled). The dialog knows the display station under the generic name 32X80CP and the printer under the generic name LU3PRT.
- A remote *Intelligent System* (IBM 3650 Retail System) at switched line 022. Its SDLC station address is D1.
- A token ring connected via the NCP/Token Ring Interconnection (NTRI). The Token-Ring Interface Coupler (TIC) has relative line number 1095.

Attached at the token ring are a PC with two logical sessions defined, plus an IBM 3174 control unit with IBM 3179 and IBM 3279-S3G terminals as logical units.

Configuration Examples - NCP

This section describes

1. The sequence of steps you have to go through and your input at each step.
2. The result, that is: the contents of the library members which the dialog creates based on your input.

Proceeding through the Dialog

The term 'HC' used within a panel name is an abbreviation for 'Hardware Configuration.'

Name of Panel	Your Input
HC: UNIT ADDRESS LIST	..PF6 for ADD ADDRESS
HC: ADD A DEVICE	..05A for STARTING ADDRESS (channel unit at the processor) 3745-210 for DEVICE NAME
HC: UNIT ADDRESS LIST	..3 for FURTHER PROCESSING
HC: NCP SUBAREA	..4
HC: 3745 CAS AND STORAGE SIZE	..x x for CAs in positions 0 - 3 x x and 8 - 11 x x x x
	4M for MEMORYSIZE 5 for USGTIER
HC: NCP NAME LIST	..PF6 for ADD NCP
HC: ADD NCP	..ncpnew7 name of NCP to be added
HC: NCP LINE LIST	..PF6 for ADD LINE
HC: DEFINE NCP LINE	..1 for Leased
HC: DEFINE NCP LINE	..020 ADDRESS at the communication controller 2 the 3745 provides clocking 1200 SPEED 1 CARRIER FACILITY half-duplex
HC: NCP LINE LIST	..PF6 for ADD LINE
HC: DEFINE NCP LINE	..2 for Switched
HC: DEFINE NCP LINE	..022 ADDRESS at the communication controller
HC: NCP LINE LIST	..PF6 for ADD LINE

Name of Panel	Your Input
HC: DEFINE NCP LINE	..3 for NCP/Token Ring Interconnection
HC: DEFINE NCP LINE	..1095 Relative line number of TIC controller 12345678 TR ADDRESS OF TIC
HC: NCP LINE LIST	..3 for FURTHER PROCESSING (of link 020)
HC: PHYSICAL UNIT LIST	..PF6 for ADD PU
HC: SUBSYSTEM GROUP	..1 for Display and Printer Subsystem
HC: DISPLAY/PRINTER CU	..15 for 3174 Model xxR
HC: PU STATION ADDRESS	..c1 SDLC station address
HC: ADD DEVICE(S)	..2 for STARTING ADDRESS 32X80CP for DEVICE NAME
HC: SNA LOGICAL UNIT LIST	..blanks for AUTOINST MODEL 2 for ALTER
HC: TERMINAL (LU) DETAILS	..PF5 for PROCESS
HC: SNA LOGICAL UNIT LIST	..PF6 for ADD LU
HC: ADD DEVICE(S)	..3 for STARTING ADDRESS LU3PRT for DEVICE NAME
HC: SNA LOGICAL UNIT LIST	..PF5 for PROCESS
HC: PHYSICAL UNIT LIST	..PF5 for PROCESS
HC: NCP LINE LIST	..3 for FURTHER PROCESSING (of link 022)

Configuration Examples - NCP

Name of Panel	Your Input
HC: PHYSICAL UNIT LIST	..PF6 for ADD PU
HC: SUBSYSTEM GROUP	..2 for Intelligent System
HC: INTELLIGENT SYSTEM	..8 for 3650 Retail Store System
HC: PU IDENTIFICATION	..d1 SDLC station address 004 for IDBLK 0c1f7 for IDNUM
HC: ADD DEVICE(S)	..118 for STARTING ADDR 119 for END ADDR 24X80 for DEVICE NAME
HC: SNA LOGICAL UNIT LIST	..PF5 for PROCESS
HC: PHYSICAL UNIT LIST	..PF5 for PROCESS
HC: NCP LINE LIST	..3 for FURTHER PROCESSING (of line 1095)
HC: PUS AT A TOKEN RING	..PF6 for ADD PU
HC: SUBSYSTEM GROUP	..1 for Display/Printer Subsystem
HC: DISPLAY/PRINTER CU	..1 for PS/2 PC (standalone)
HC: PU IDENTIFICATION	..22223333 for LAN ADDRESS/2 CPTRPS2 for CPNAME 1 for CALL DIRECTION
HC: ADD DEVICE(S)	..2 for STARTING ADDR ..24X80C DEVICE NAME
HC: SNA LOGICAL UNIT LIST	..PF6 for ADD LU
HC: ADD DEVICE(S)	..3 for STARTING ADDR
HC: SNA LOGICAL UNIT LIST	..PF5 for PROCESS

Name of Panel	Your Input
HC: PUS AT A TOKEN RING	..PF6 for ADD PU
HC: SUBSYSTEM GROUP	..1 for Display/Printer System
HC: DISPLAY/PRINTER CU	..15 for 3174-xxR
HC: PU IDENTIFICATION	..44445555 for LAN ADDRESS/2 d2e30 for IDNUM
HC: ADD DEVICE(S)	..2 for STARTING ADDR 24X80C DEVICE NAME (3179)
HC: SNA LOGICAL UNIT LIST	..PF6 for ADD LU
HC: ADD DEVICE(S)	..3 for STARTING ADDR 32X80CP DEVICE NAME (3279-S3G)
HC: SNA LOGICAL UNIT LIST	..PF5 for PROCESS
HC: PUS AT A TOKEN RING	..PF5 for PROCESS
HC: NCP LINE LIST	..PF5 for PROCESS
HC: NCP NAME LIST	..6 for GENERATE NCP
JOB DISPOSITION	..2 JOB DESTINATION=file in library
HC: NCP NAME LIST	..PF5 for PROCESS
HC: UNIT ADDRESS LIST	..PF5 for PROCESS
HC: CATALOG STARTUP MEMBERS	..x for IPL Procedures x for VTAM Books, Model Terminal Support x for CICS CSD Group, terminals - VSETERM1

Resulting Library Members

The above dialog ends with the *Job Disposition* panel. You can now submit the catalog job. For its contents see Figure 53 on page 110.

Configuration Examples - NCP

```
* $$ JOB JNM=SUBMCAT,DISP=D,PRI=3, C
* $$ NTFY=YES, C
* $$ LDEST=*, C
* $$ CLASS=0
// JOB SUBMCAT CATALOG STARTUP MEMBERS AND PHASES
* $$ SLI ICCF=(DTRCSDJ1),LIB=(51)
// EXEC LIBR,PARM='MSHP'
ACCESS SUBLIB=IJSYSRS.SYSLIB
* $$ SLI ICCF=(IPLPROC),LIB=(51)
CONNECT SUBLIB=IJSYSRS.SYSLIB:PRD2.SAVE
COPY $IPLESA.PROC REPLACE=YES
ACCESS SUBLIB=PRD2.CONFIG
DELETE VTMMDL.SAVE
RENAME VTMMDL.B:VTMMDL.SAVE
CATALOG VTMMDL.B REPLACE=YES
* $$ SLI ICCF=(VTMMDL),LIB=(51)
/+
/*
/&
* $$ EOJ
```

Figure 53. Example of Catalog Startup Members (NCP)

The catalog job *includes* from library 51 three members which the dialog had created:

1. NCPNEW71 (via member DTRCSDJ1)

This member contains the DEFINE TERMINAL statements for the display station and the printer which you configured at line 020. For the content see Figure 54.

```
*****
* NCP      CONTROLLED REMOTE TERMINAL ENTRIES      *
*****
      DC C'DEFINE TERMINAL(N001) GROUP(VSETERM1) '
      DC C'TYPETERM(VSELU2G) '
      DC C'NETNAME(N0010004) '
      DC X'FFFFFFFF'
      DC C'DEFINE TERMINAL(N002) GROUP(VSETERM1) '
      DC C'TYPETERM(VSELU3A) '
      DC C'NETNAME(N0020004) '
      DC C'SPOOLPRTRSL(1) '
      DC C'OPERRSL(1) '
      DC X'FFFFFFFF'
```

Figure 54. Example of DEFINE TERMINAL Instructions (Member NCPNEW71)

As a result of the catalog job, the terminal definitions will be stored in the specified CSD group.

2. IPLPROC

IPLPROC contains a job step which catalogs the IPL procedure \$IPLESA.PROC in the system library. Due to the above dialog, the IPL procedure will contain the statement

```
ADD 05A,3745,01
```


for the communication controller you just configured.

3. VTMMDL

The job catalogs into the system library the VTAM book VTMMDL.B which contains a cross-reference from the AUTINST MODEL specification in the dialog to the name of the LU's model definition in the CSD. For the LUs the following entry in VTMMDL appears:

```
VSELU2A MDLENT MODEL=VSELU2A
```

It indicates that for AUTINST MODEL 'VSELU2A' the name of the model definition is 'VSELU2A' (under VSE/ESA the names are identical).

Requesting the NCP generation job (see the lower portion on page 109) results in the creation of four library members:

- NCPNEW7J in your primary library

For the content see Figure 55 on page 112.

Job NCPNEW7J takes its input from members

```
NCPNEW7  
NCPNEW7M  
NCPNEW7V
```

They will be discussed after the following figure.

Configuration Examples - NCP

```
* $$ JOB JNM=NCPNEW7J,DISP=D,PRI=3,
* $$ NTFY=YES,
* $$ LDEST=*,
* $$ CLASS=0
* $$ LST      DISP=D,CLASS=A
// JOB NCPNEW7J
* *****
* THIS JOB ASSEMBLES AN NCP SOURCE PROGRAM CONTAINING NCP GENERATION
* MACRO INSTRUCTIONS BY USING NDF.
*
* THIS JOB ALSO CATALOGS THE NCP SOURCE PROGRAM FOR USE AS AN
* ACF/VTAM MAJOR NODE DEFINITION
* *****
// LIBDEF *,SEARCH=(PRD2.COMM,PRD2.COMM2),TEMP
*
* THE SYSPCH FILE IS USED AS THE PUNCH CODE OUTPUT FILE BY NDF.
* IT WILL BE USED AS THE INPUT FILE FOR THE TABLE ASSEMBLIES.
*
// DLBL IJSYSPH,'TMP.FILE',0,SD
// EXTENT SYSPCH,SYSWK1,,,1,375
// ASSGN SYSPCH,DISK,PERM,VOL=SYSWK1,SHR
// DLBL IJSYSNW,'NEWDEFN',0001,SD
// EXTENT SYS001,SYSWK1,,,9075,60
// ASSGN SYS001,DISK,PERM,VOL=SYSWK1,SHR
*
* IF THE GENERATION FAILS BECAUSE THE VSAM WORK FILE DBWRKFL IS
* MISSING, YOU CAN USE SKELETON SKNCPWKF IN ICCF LIBRARY 59 TO
* CREATE THE WORK FILE.
*
// EXEC  ICNDNDF,SIZE=AUTO
* $$ SLI ICCF=(NCPNEW7),LIB=(51)
/*
// IF $RC GE 4 THEN
// GOTO CLSPCH
CLOSE SYSPCH,FED
* DEFINITION OF THE INPUT FILE FOR ALL 3 ASSEMBLIES
// DLBL IJSYSIN,'TMP.FILE'
// EXTENT SYSIPT
// ASSGN SYSIPT,DISK,PERM,VOL=SYSWK1,SHR
* DEFINITION OF THE PUNCH CODE OUTPUT FILE FOR ALL 3 ASSEMBLIES
*
// DLBL IJSYSPH,'TABLE.TEXT',0,SD
// EXTENT SYSPCH,SYSWK1,,,377,375
// ASSGN SYSPCH,DISK,PERM,VOL=SYSWK1,SHR
// OPTION DECK,SXREF
// EXEC IFZASM,SIZE=200K
// IF $RC GE 4 THEN
// GOTO CLSBOTH
// EXEC IFZASM,SIZE=200K
// IF $RC GE 4 THEN
// GOTO CLSBOTH
```

Figure 55 (Part 1 of 2). Job NCPNEW7J for NCP Generation

```

// EXEC IFZASM,SIZE=200K
// IF $RC GE 4 THEN
// GOTO CLSBOTH
CLOSE SYSIPT,FEC
CLOSE SYSPCH,FED
* LIBRARIAN USED TO CATALOG THE TABLE.TEXT FILES INTO OBJ MEMBERS
*
* THE PUNCH CODE OUTPUT FILE FROM THE TABLE ASSEMBLIES SERVES AS A
* INPUT FILE FOR THE LIBRARIAN
// DLBL IJSYSIN,'TABLE.TEXT'
// EXTENT SYSIPT
// ASSGN SYSIPT,DISK,PERM,VOL=SYSWK1,SHR
// EXEC LIBR,PARM='ACC S=PRD2.COMM2'
// IF $RC GT 0 THEN
// GOTO CLSIPT
// LIBDEF PHASE,CATALOG=PRD2.COMM2
// OPTION CATAL
    ACTION MAP,NOAUTO
    INCLUDE INLINKED
// EXEC LNKEDT
CLOSE SYSIPT,FEC
// DLBL IJSYSIN,'NEWDEFN',0001,SD
// EXTENT SYSIPT,SYSWK1,,,9075,60
// ASSGN SYSIPT,DISK,PERM,VOL=SYSWK1,SHR
// EXEC LIBR,PARM='A S=PRD2.CONFIG;CATALOG NCPNEW7.B R=Y EOD=*?'
/*
// IF $RC GT 0 THEN
// GOTO CLSIPT
CLOSE SYSIPT,FEC
// EXEC LIBR
ACCESS S=PRD2.CONFIG
CATALOG NCPNEW7M.B    REPLACE = YES
* $$ SLI ICCF=(NCPNEW7M),LIB=(51)
/+
/*
// EXEC  LIBR
ACCESS SUBLIB=PRD2.CONFIG
CATALOG NCPNEW7V.B    REPLACE=YES
* $$ SLI ICCF=(NCPNEW7V),LIB=(51)
/+
/*
// GOTO $EOJ
/. CLSPCH
CLOSE SYSPCH,FED
// GOTO $EOJ
/. CLSBOTH
CLOSE SYSPCH,FED
/. CLSIPT
CLOSE SYSIPT,FEC
/&
* $$ EOJ

```

Figure 55 (Part 2 of 2). Job NCPNEW7J for NCP Generation

- NCPNEW7 in library 51

Configuration Examples - NCP

This member contains macro specifications for NCP. Figure 56 on page 115 shows its content.

- NCPNEW7V in library 51

This member contains VTAM macros defining the IBM 3650 at the switched line. Figure 57 on page 120 shows its content.

- NCPNEW7M in library 51

This member, too, contains VTAM macros. The macros define the devices at the token ring. Figure 58 on page 121 shows the content of NCPNEW7M.

Notice how the dialog has assigned resource names according to the 4-digit naming convention (which is described in Figure 111 on page 224).

To **activate** the new NCP, you either use VTAM operator commands. Or you add the NCPNEW7 members as VTAM major nodes to the *VTAM configuration list* ATCCONxx (see “Configuration List” on page 195); the new NCP will then be activated at the next startup of VTAM.

```

*****
*
*          OPTIONS MACRO SPECIFICATION
*
*****
*
*          OPTIONS NEWDEFN=(YES,ECHO)
*          EJECT
*****
*
*          PCCU MACRO SPECIFICATION
*
*****
*
*          PCCU  CUADDR=05A,          3745-210 CONTROL UNIT ADDRESS          X
*                MAXDATA=4000,        MAXIMUM DATA TRANSFER TO NCP          X
*                AUTOIPL=NO,          DO NOT AUTOIPL AND RESTART            X
*                SUBAREA=1,          SAME AS ACF/VTAM HOSTSA OPERAND          X
*                NCPLUB=SYS005        UNIT CONTAINING NCP LOAD MODULE
*          EJECT
*****
*
*          BUILD MACRO SPECIFICATION
*
*****
*
*          BUILD BFRS=240,          NCP BUFFER SIZE                          X
*                BRANCH=500,        BRANCH TRACE ENTRIES                    X
*                CWALL=26,          MIN. BUFFERS BEFORE SLOWDOWN              X
*                DR3270=YES,        DYNAMIC RECONFIG FOR SDLC 3270            X
*                DSABLT0=11.5,      DISABLE TIMEOUT FOR DATA SET READY        X
*                ENABLT0=11.5,      ENABLE TIMEOUT FOR DATA SET READY          X
*                LTRACE=2,          ALLOW LINE TRACE                          X
*                MAXSSCP=8,          MAXIMUM CONCURRENT SSCP-NCP SESSIONS      X
*                MAXSUBA=255,        THE MAXIMUM FOR SA NUMBERS (PRE-ENA)        X
*                SALIMIT=255,        THE MAXIMUM FOR SA NUMBERS (ESA*)          X
*                MEMSIZE=4096,      3745-210 STORAGE SIZE IN K-BYTES            X
*                USGTIER=5,          SCANNER RELATED FEATURE CODE              X
*                MODEL=3745-210,     MODEL FOR 3745-210                        X
*                NEWNAME=NCPNEW7,   X
*                OLT=YES,            ONLINE TEST AVAILABLE                    X
*                PRTGEN=NOGEN,       SUPPRESS PRINTING OF MACRO GEN STMTS      X
*                SLOWDOWN=12,        SLOWDOWN WHEN 12% OF BUFFERS AVAIL        X
*                SUBAREA=4,          X
*                TRACE=(YES,64),     64 ADDRESS TRACE ENTRIES                  X
*                TRANSFR=,           MAX NCP BUFFER TRANSFER TO HOST            X
*                TYPGEN=NCP,         CONTROLLER OPERATES CHANNEL ATTACHED      X
*                TYP SYS=DOS,        VSE/ESA IS A DOS BASED SYSTEM              X
*                NETID=VTAM1,        NAME OF THE NETWORK                       X
*                VERSION=V7R1        ACF/NCP VERSION V7R1 IS USED
*          EJECT

```

Figure 56 (Part 1 of 5). NCP Generation Member NCPNEW7

Configuration Examples - NCP

```
*****
*
*          SYSCNTRL MACRO SPECIFICATION
*
*****
*
*          SYSCNTRL OPTIONS=(BHSASSC,ENDCALL,MODE,RCNTRL,RCOND,RECMD, X
*          RIMM,NAKLIM,SESSION,SSPAUSE,XMTLMT,STORDSP,DLRID,RDEVQ)
*
*          EJECT
*****
*
*          HOST MACRO SPECIFICATION
*
*****
*
*          HOST  BFRPAD=15,          15 REQUIRED BY VSE VTAM          X
*                INBFERS=3,          MINIMUM NCP BUFFER ALLOCATION  X
*                MAXBFRU=15,          VTAM BUFFER UNIT ALLOCATION    X
*                SUBAREA=(1),        ACF/VTAM SUBAREA ADDRESS       X
*                UNITSZ=288          ACF/VTAM IO BUFFER SIZE (LFBUF)
*          EJECT
*****
*
*          DYNAMIC RECONFIGURATION POOL SPACE
*          LUDRPOOL AND PUDRPOOL MACRO SPECIFICATIONS
*
*****
*
*          LUDRPOOL NUMTYP1=1,        ALLOW 1 LU ON PU.T1 PU          X
*                NUMTYP2=6    ALLOW 6 LUS ON PU.T2 PU
*
*          PUDRPOOL NUMBER=2          CAN ADD 2 PUS
*          EJECT
*****
*
*          PATH MACRO SPECIFICATION
*
*****
*
*          PATH  DESTSA=(1),          X
*                ERO=(1,1)
*          EJECT
*          EJECT
```

Figure 56 (Part 2 of 5). NCP Generation Member NCPNEW7

```

*****
*
*          GROUP MACRO SPECIFICATION FOR SDLC LEASED LINES
*
*****
*
GNCP0004 GROUP LNCTL=SDLC,DIAL=NO,TYPE=NCP LEASED, NCP ONLY
EJECT
*****
*
*          LINE MACRO SPECIFICATION
*
*****
*
L0200004 LINE ADDRESS=020,          TRANSMIT AND RECEIVE ADDRESS      X
              CLOCKNG=INT,          DEFINE TIMING AND ATTACHMENT        X
              DATRATE=HIGH,          X
              DUPLEX=HALF,          MODEM STRAPPING IS HALF-DUPLEX      X
              ISTATUS=ACTIVE,        INITIAL STATUS IS ACTIVE          X
              NEWSYNC=NO,           CAN MODEM HANDLE NEW SYNC SIGNAL?    X
              NRZI=YES,             MODEM OPERATES IN NRZI MODE          X
              SPEED=1200,           DATA RATE FOR THIS LINE            X
              RETRIES=(5)           5 RETRIES PER RECOVERY SEQUENCE
*
*          SERVICE MACRO SPECIFICATION
*          SERVICE ORDER=(CVLT0004)
*          EJECT
*****
*
*          3174-XXR PU AND LU SPECIFICATIONS
*
*****
*
CVLT0004 PU  ADDR=C1,              PHYSICAL UNIT ADDRESS                X
              ANS=CONT,            CONTINUE POLLING AFTER LOSING SSCP    X
              DISCNT=(NO),         KEEP SSCP-PU AND SSCP-LU SESSIONS     X
              IRETRY=NO,           NO REPOLL AFTER IDLE DETECT TIMEOUT    X
              ISTATUS=ACTIVE,       ACTIVATE WHEN MAJOR NODE ACTIVATED    X
              MAXDATA=265,         MAXIMUM DATA TRANSFER PU CAN ACCEPT   X
              MAXOUT=7,            MAX PIU TRANSFER BEFORE RESPONSE       X
              PASSLIM=4,           MAX CONSECUTIVE DATA TRANSFERS        X
              PUTYPE=2,            PU TYPE 2                              X
              RETRIES=(,1,4),PACING=0,VPACING=0
*
N0010004 LU  LOCADDR=2,DLOGMOD=SP3273ES,LOGAPPL=DBDCCICS,              X
              ISTATUS=ACTIVE,MODETAB=IESINCLM,                        X
              SSCPFM=USSSCS,USSTAB=VTMUSSTR
N0020004 LU  LOCADDR=3,DLOGMOD=SPLU3PRT,LOGAPPL=DBDCCICS,              X
              ISTATUS=ACTIVE,MODETAB=IESINCLM,                        X
              SSCPFM=USSSCS
*
EJECT

```

Figure 56 (Part 3 of 5). NCP Generation Member NCPNEW7

Configuration Examples - NCP

```
*****
*
*          GROUP MACRO SPECIFICATION FOR SDLC SWITCHED LINES
*
*****
*
HNCP0004 GROUP LNCTL=SDLC,DIAL=YES,TYPE=NCP  SWITCHED, NCP ONLY
          EJECT
*****
*
*          LINE MACRO SPECIFICATION
*
*****
*
L0220004 LINE  ADDRESS=022,          TRANSMIT AND RECEIVE ADDRESS      X
                CALL=IN,              X
                CLOCKNG=INT,          DEFINE TIMING AND ATTACHMENT      X
                DATRATE=HIGH,         X
                DUPLEX=HALF,          MODEM STRAPPING IS HALF-DUPLEX     X
                ISTATUS=ACTIVE,       INITIAL STATUS IS ACTIVE          X
                NEWSYNC=NO,           CAN MODEM HANDLE NEW SYNC SIGNAL?   X
                NRZI=YES,             MODEM OPERATES IN NRZI MODE        X
                SPEED=1200,           DATA RATE FOR THIS LINE           X
                RETRIES=(5)           5 RETRIES PER RECOVERY SEQUENCE
Z00Y0004 PU    ISTATUS=ACTIVE
          EJECT
*****
*
*          PHYSICAL GROUP MACRO SPECIFICATION FOR TIC 1
*
*****
*
TG950004 GROUP ECLTYPE=PHYSICAL  PHYSICAL GROUP
          EJECT
*****
*
*          LINE MACRO SPECIFICATION FOR TIC 1
*
*****
*
TI950004 LINE  ADDRESS=(1095,FULL), TICS ADDRESS IN 3745-210          X
                PORTADD=1,           WHERE TH950004 POINTS TO          X
                ADAPTER=TIC1,        ADAPTER TYPE                      X
                TRSPEED=4,           DATA SPEED ON THE RING            X
                LOCADD=400012345678 'SOFT' ADDRESS FOR TIC
TP950004 PU
TL950004 LU    ISTATUS=INACTIVE
```

Figure 56 (Part 4 of 5). NCP Generation Member NCPNEW7


```

*****
*
*          LOGICAL GROUP MACRO SPECIFICATION FOR TIC 1
*
*****
*
TH950004 GROUP ECLTYPE=LOGICAL,    LOGICAL GROUP                X
              AUTOGEN=2,          AUTOGEN 2 LINES/PUS          X
              CALL=INOUT,         ALLOW DIAL IN AND DIAL OUT    X
              PHYPORT=1          POINTS TO TIC (PORTADD)
              EJECT
*
*          GROUP MACRO SPECIFICATION FOR CAs (NEW STYLE GENs)
*
CAGROUP GROUP LNCTL=CA,          THE FOLLOWING VALUES ARE FOR ALL CAS X
              DELAY=0.2,          CA ATT. DELAY                X
              TIMEOUT=(120),      TIME, NCP WAITS FOR A RESPONSE X
              NCPCA=ACTIVE,       STATUS OF THE CHANNEL ADAPTER X
              CASDL=0,            INFINITE CA SLOW DOWN TIME    X
              ISTATUS=INACTIVE
CA005A  LINE ADDRESS=0,          X
              CA=TYPE6
CP005A  PU  PUTYPE=5
CA105A  LINE ADDRESS=1,          X
              CA=TYPE6
CP105A  PU  PUTYPE=5
CA205A  LINE ADDRESS=2,          X
              CA=TYPE6
CP205A  PU  PUTYPE=5
CA305A  LINE ADDRESS=3,          X
              CA=TYPE6
CP305A  PU  PUTYPE=5
CA805A  LINE ADDRESS=8,          X
              CA=TYPE6
CP805A  PU  PUTYPE=5
CA905A  LINE ADDRESS=9,          X
              CA=TYPE6
CP905A  PU  PUTYPE=5
CA1005A LINE ADDRESS=10,         X
              CA=TYPE6
CP1005A PU  PUTYPE=5
CA1105A LINE ADDRESS=11,         X
              CA=TYPE6
CP1105A PU  PUTYPE=5
*
*****
*          GENEND DELIMITER
*
*****
*
          GENEND
*?
          END

```

Figure 56 (Part 5 of 5). NCP Generation Member NCPNEW7

Configuration Examples - NCP

```
NCPNEW7V VBUILD TYPE=SWNET
*
*****
*   3650 PU AND LU SPECIFICATIONS
*****
*
CSG10004 PU   ADDR=D1,VPACING=3,                                X
               IDBLK=004,IDNUM=0C1F7,MAXPATH=256,PACING=0,      X
               PUTYPE=2,MAXDATA=265
*
N0030004 LU   LOCADDR=118,DLOGMOD=SP32702S,                      X
               ISTATUS=ACTIVE,MODETAB=IESINCLM,                  X
               MDLTAB=VTMMDL,                                    X
               MDLENT=VSELU2A,                                    X
               SSCPFM=USSSCS,USSTAB=VTMUSSTR
N0040004 LU   LOCADDR=119,DLOGMOD=SP32702S,                      X
               ISTATUS=ACTIVE,MODETAB=IESINCLM,                  X
               MDLTAB=VTMMDL,                                    X
               MDLENT=VSELU2A,                                    X
               SSCPFM=USSSCS,USSTAB=VTMUSSTR
```

Figure 57. Member NCPNEW7V - VTAM Definitions for IBM 3650

```

NCPNEW7M VBUILD TYPE=SWNET,                                X
                MAXGRP=1,          NUMBER OF UNIQUE PATH GROUPS      X
                MAXNO=1            NUMBER OF UNIQUE TELEPHONE NUMBERS
*
*****
*   PC PU, PATH AND LU SPECIFICATIONS
*****
*
CSG20004 PU      ADDR=C1,VPACING=0,                          X
                MAXPATH=256,PACING=0,                        X
                CPNAME=CPTRPS2,PUTYPE=2,MAXDATA=265
*
N0050004 LU      LOCADDR=2,DLOGMOD=SP3272ES,                  X
                ISTATUS=ACTIVE,MODETAB=IESINCLM,              X
                MDLTAB=VTMMDL,                                X
                MDLENT=VSELU2E,                                X
                SSCPFM=USSSCS,USSTAB=VTMUSSTR
N0060004 LU      LOCADDR=3,DLOGMOD=SP3272ES,                  X
                ISTATUS=ACTIVE,MODETAB=IESINCLM,              X
                MDLTAB=VTMMDL,                                X
                MDLENT=VSELU2E,                                X
                SSCPFM=USSSCS,USSTAB=VTMUSSTR
*
*****
*   3174-XXR PU, PATH AND LU SPECIFICATIONS
*****
*
CSG30004 PU      ADDR=C1,VPACING=0,                          X
                IDBLK=017,IDNUM=D2E30,MAXPATH=256,PACING=0,  X
                PUTYPE=2,MAXDATA=265
*
*
*          PATH DIALNO=0104400044445555, UNIQUE TELEPHONE NUMBER X
*          GRPNM=TH950004,      CONNECTION TO LOGICAL GROUP      X
*          GID=1,                IDENTIFIES A GROUP OF PATHS      X
*          PID=1                IDENTIFIES THE PATH
*
*
N0070004 LU      LOCADDR=2,DLOGMOD=SP3272ES,                  X
                ISTATUS=ACTIVE,MODETAB=IESINCLM,              X
                MDLTAB=VTMMDL,                                X
                MDLENT=VSELU2E,                                X
                SSCPFM=USSSCS,USSTAB=VTMUSSTR
N0080004 LU      LOCADDR=3,DLOGMOD=SP3273ES,                  X
                ISTATUS=ACTIVE,MODETAB=IESINCLM,              X
                MDLTAB=VTMMDL,                                X
                MDLENT=VSELU2G,                                X
                SSCPFM=USSSCS,USSTAB=VTMUSSTR

```

Figure 58. Member NCPNEW7M - VTAM Definitions for NTRI-Attached Devices

Configuration Examples - NCP

Chapter 3. Special Configuration Tasks

This chapter presents some special tasks and aspects of configuring a telecommunication network. Some of these topics may not be so special in your environment, others may not apply at all. It all depends on your hardware mix. Still other tasks may have to be done only occasionally.

The topics of this chapter include

- Deleting devices
- Defining a Token-Ring via a gateway control unit
- Defining workstations
- Defining remote non-SNA devices

Deleting Devices

At almost every stage of the Hardware Configuration dialog, you can delete something that you defined before. For example, in the

- *Hardware Configuration: Logical Unit List* panel,
you can delete a logical unit. Select option **5=DELETE AN LU**; in the
- *Hardware Configuration: Physical Unit List* panel,
you can delete a physical unit. Select option **5=DELETE PHYSICAL UNIT**; in the
- *Hardware Configuration: Unit Address List* panel,
you can delete an I/O address. Select option **5=DELETE A DEVICE**.

As a **general rule**, deleting one object causes all attached subordinate objects to be deleted as well. For example, deletion of a link definition results in the deletion of all attached physical units and logical units. Or, deletion of an I/O address deletes links plus physical units plus logical units.

Three **exceptions** must be observed:

1. After you deleted an X.25 packet-switched object, all subordinate objects **will be** deleted. Therefore, you would no longer be able to activate them with VTAM. However, the associated source books (VTMXPU and PORxxxxx) remain in the system. They won't do any harm. But if you decide to remove them, you must delete the **two copies** that exist: (1) in VSE/ICCF library 51, (2) in library PRD2.CONFIG.
2. Similarly, source books for NCP major nodes remain in the system after you have deleted the communication controller I/O address, or an NCP link, PU or LU, **until you regenerate your NCP**.
3. Deletion of a **switched link** does not delete the attached physical units or logical units. There is still the possibility that these units dial into the system via another switched link.

Token-Ring via Gateway Control Unit

Please observe the following restriction with regard to

VSE/POWER and VSE/ICCF Dummy Devices:

You cannot change or delete the following VSE/POWER and VSE/ICCF dummy devices: FEC, FFA, FFC.

You can change but not delete the following VSE/POWER and VSE/ICCF dummy devices: FED, FEE, FEF, FFD, FFE.

Note: Because the CICS Transaction Server uses Language Environment (LE) I/O routines, not all device types are supported. *Your CICS system might not start if a non-supported device is used!* For a list of supported devices, refer to the members CEEYPR0.A and CEEYCD0.A contained in the library IJSYSRS.SYSLIB.

You cannot change nor delete the dummy device FFF which is a place holder for a dedicated system console.

Defining Token-Ring Attached Devices via Gateway

The Interactive Interface of VSE/ESA supports gateway functions to the IBM Token-Ring Network via an IBM 3174 control unit. The control unit must have the IBM Token-Ring Network 3270 Gateway feature, feature code 3025.

The attachment allows, for example, that IBM workstations connected to the token ring switch into 3270 emulation mode and then access VSE/ESA host functions.

The gateway control unit either is **local** SNA, as illustrated in the following figure.

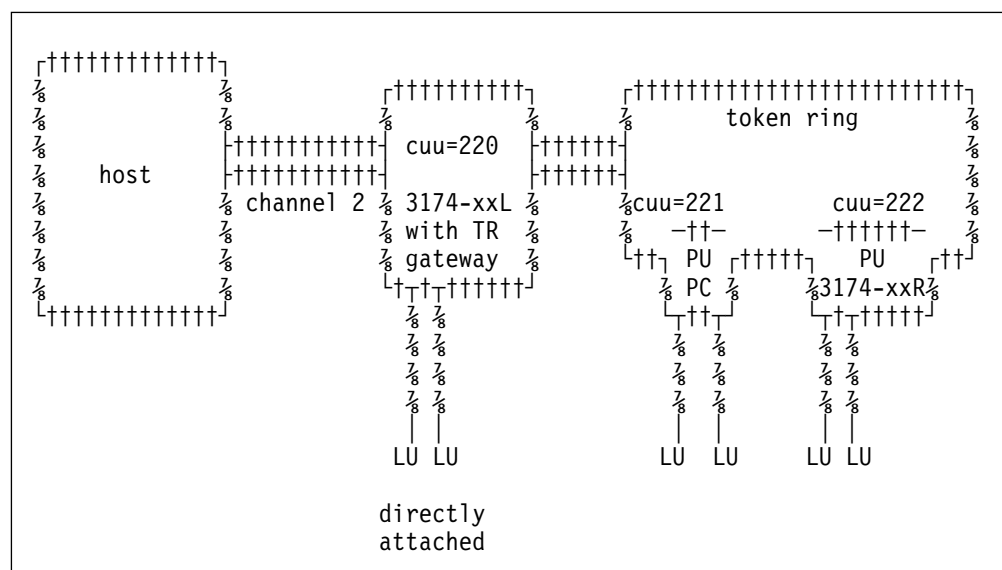


Figure 59. Example of Local SNA Gateway Control Unit

Or, it is a **remote** control unit connected to the host or to an NCP-controlled 37xx via an SDLC leased line. This is illustrated in the figure below.

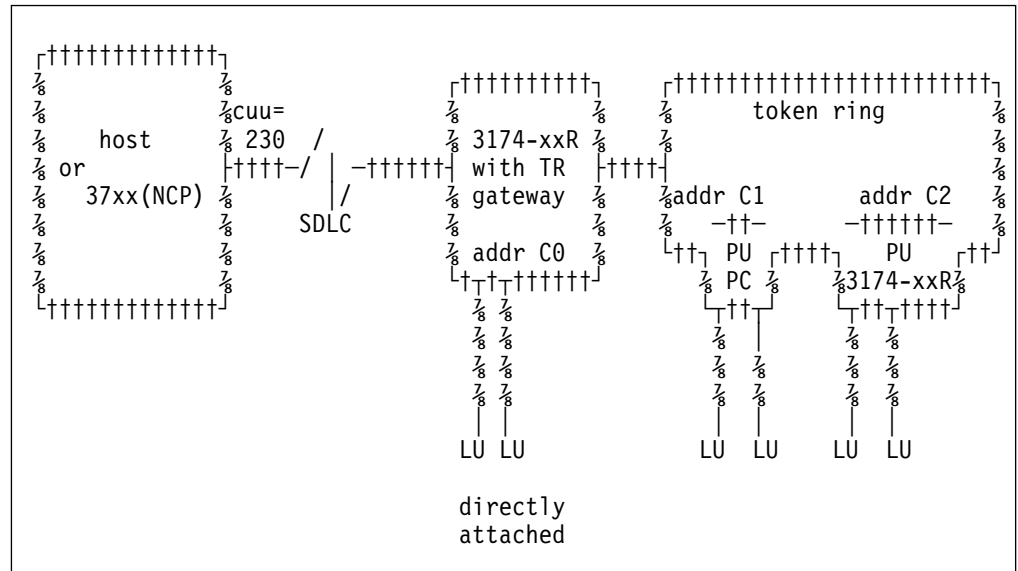


Figure 60. Example of Remote Gateway Control Unit

The following sections describe the configuration involving the **control unit as gateway**. Only a local attachment is demonstrated, but a remote attachment would have to be handled in a similar way.

An attachment **without** a gateway control unit is possible through the

- Token-ring adapter, integrated into the processor such as the one of the IBM ES/9221. Its configuration support in VSE/ESA is described in “Defining an IBM Token-Ring Adapter Link” on page 57.
- NCP/Token-Ring Interconnection (NTRI), which controls the Token-Ring Network Attachment Subsystem (TRSS) of the 37xx communication controller. Its configuration support in VSE/ESA is described as part of the process of defining NCP-attached devices. The description starts with section “Describing the NCP Link(s)” on page 62.

Defining a Gateway Local SNA Control Unit

The IBM 3174-xxL configured with the Token-Ring Network 3270 Gateway feature is defined as a **local-SNA channel-attached** control unit. Each token-ring attached node, for example a workstation, also **acts as an SNA channel-attached control unit**.

During customization of the IBM 3174, you are asked to define a subchannel range of hexadecimal addresses which are used (together with the channel number where your 3174 is attached to the host) as the I/O addresses, or *channel unit addresses*, of corresponding SNA physical units. For more information refer to the IBM publication *3174 Subsystem Control Unit Customizing Guide*, order number GA23-0214. The lowest subchannel address in the specified range is assigned to the 3174 itself. All other subchannel addresses correspond to the stations attached to the token ring (such as workstations and remote control units).

Figure 59 on page 124 shows an example. The 3174 connects to the host processor over channel 2, has subchannel address 20 assigned to itself, and consequently has 220 as I/O address. Likewise, the workstation attached to the

Token-Ring via Gateway Control Unit

token ring belongs to subchannel address 21, the remote control unit to subchannel address 22. Their I/O addresses are 221 and 222.

Defining the devices to VSE/ESA happens in two steps.

First you define the logical units that are **directly attached** to the control unit. You proceed through the dialog in the 'normal fashion,' that is: as if no token ring were connected to the control unit. You end at the panel *Hardware Configuration: SNA Logical Unit List*. Pressing PF5=PROCESS brings you back to the panel *Hardware Configuration: Unit Address List*.

From here you start a second loop through the dialog: defining the units that are attached to the token ring. Select 3=SELECT FOR FURTHER PROCESSING. The dialog now asks you to specify the number of physical units at the token ring, the so-called *down-stream physical units* (DSPUs). Refer to the figure below.

```
COM$TR0          HARDWARE CONFIGURATION: NUMBER OF DSPUS

Change the number and/or press ENTER

You are defining token-ring downstream PUs (DSPUs) attached to a Controller
(PU) with token-ring gateway feature.

Gateway PU address ..... 220

To show the LUs attached to your gateway controller do not change the current
number of DSPUs and press ENTER.

To increment or decrement the number of DSPUs attached to your token ring
change the number as appropriate and press ENTER.

TOTAL ATTACHED DSPUS..... __3      Increment or decrement this number
                                      by the number of DSPUs you want to
                                      add or delete.

PF1=HELP          2=REDISPLAY  3=END
```

Figure 61. Specifying Number of DSPUs

The dialog now leads you through the definition of downstream PU and LU(s) for as many times as you had requested DSPUs **to be added**. Note that the number represents an **increment** over any previously specified number. If, for example, you had at an earlier time defined one DSPU and now enter 3, you indicate that you want to add two DSPUs. Consequently, the dialog leads you twice through the definition of PU and LU(s).

The dialog assigns contiguous 'cuu' addresses behind the address of the highest DSPU (as long as these addresses are still free). Assume that you had so far defined a control unit with address 220 and one DSPU at 221 and are now adding two DSPUs, the dialog assigns addresses 222 and 223. The dialog generates additional IPL ADD statements:

```
ADD 222,3791L
ADD 223,3791L
```


Likewise, entering a decremented number causes DSPU(s), starting with the one that has the **highest address**, to be deleted. Their LUs will be deleted as well. For example, assume that you had previously defined a set of three DSPUs 221, 222 and 223. If you now enter '1' for TOTAL ATTACHED DSPUS, you cause the DSPUs with addresses 223 and 222 to be deleted.

The above is the only method available for deleting **individual** DSPUs. To delete the gateway PU and all DSPUs with all attached LUs, use option 5=DELETE for the gateway PU.

Defining a Gateway Remote Control Unit

In principle this definition happens just like the local gateway case. After you defined the leased SDLC line,

- In the panel *Hardware Configuration: Display/Printer CU*, you select the physical unit at the SDLC line: '16' for 3174 xxR with token-ring gateway. For an example of the panel see Figure 30 on page 68.
- The dialog now lets you define the logical units that are directly attached at the control unit.
- You come back to the PHYSICAL UNIT LIST. Choose option 3 = SELECT FOR FURTHER PROCESSING.
- The dialog now asks you to specify the number of physical units at the token ring, the so-called *down-stream physical units* (DSPUs). Refer to Figure 61 on page 126.
- The dialog now walks you through the definition of downstream PU and LU(s) for as many times as you had requested DSPUs **to be added**. Note that the number represents an **increment** over any previously specified number.

The dialog assigns contiguous gateway PU addresses (also called *SDLC address*) behind the address of the highest DSPU.

Configuring IBM Workstations

IBM workstations are supported by the *Configure Hardware* dialog in various ways, depending on their type and use:

- Standalone
- Workstation Gateway
- IBM DBCS Workstation (the IBM 5550 for example)
- Workstation with APPC
- 3270 display station.

The first four varieties essentially act as **physical units** and often include the **logical unit** function too. That's why you encounter them in the context of physical unit selection. See Figure 30 on page 68 and Figure 31 on page 69.

The last type within the above group acts solely as **logical unit**. You find it, therefore, in the panel for selecting the logical unit device. See Figure 35 on page 75.

Configuring IBM workstations

VSE/ESA supports any workstation as a 3270 display station, provided the workstation supports 3270 terminal emulation via a suitable adapter and the corresponding emulation control program. Such a workstation is connected and defined to VTAM like a normal 3270 display station: as a local or as a remote workstation (SNA or non-SNA).

For information about required emulation adapter cards and possible host connections, refer to the appropriate workstation and emulation program documentation, or contact your IBM marketing representative.

The *Configure Hardware* dialog helps you in defining an IBM workstation.

For an IBM workstation with more than one host session, each session must be defined to VSE/ESA as a separate device (in case of a non-SNA attachment), or as a separate logical unit (in case of an SNA attachment).

When defining a workstation to VSE/ESA you must know whether it operates in **DFT** (distributed function terminal) mode or in **CUT** (Control Unit Terminal) mode as explained below. If you do not know or cannot find out, assume that your workstation operates in DFT mode.

Defining a Workstation operating in DFT Mode

For workstations operating in **DFT** mode, the Extended Data Stream (EXTDS) feature must be specified for each device associated with a host session. For the VSE Workstation File Transfer support to work, the workstation needs the EXTDS feature and therefore the DFT mode specification.

Examples of workstations operating in DFT mode are:

- IBM 3270 workstation if customized for DFT mode
- All IBM 5550/3270 workstations
- All workstations working with the IBM workstation 3270 Emulation Program
- All workstations working with the IBM Personal Communication/3270 Program
- All workstations working with the IBM OS/2 Extended Edition Communication Manager (unless customized for ASCII mode).

Following is a **selection of attachments** for IBM workstations operating in DFT mode.

Local Attachments:

- The Work Station Subsystem Controller available with IBM ES/9221 series processors
- Any model of an IBM 3174/3274 control unit that supports extended data streams. For such a control unit, special configuration is required. For information about this support, refer to the appropriate manual of your IBM workstation.

SDLC Attachments:

IBM workstations operating in SDLC mode (that is, as a remote device) are defined to VSE/ESA like an IBM 3274-51C or 3274-61C control unit with one or more display stations. In this case you would pass through the *Hardware Configuration: Display/Printer CU* panel and select options 10 or 11 for the physical unit. Please see Figure 30 on page 68.

To define a workstation in DFT mode, specify at the logical unit level the DEVICE NAME (or select from the *Selection List: Devices*):

24X80Q

Defining a Workstation operating in CUT Mode

Workstations operating in **CUT** mode do not require the EXTDS feature. Examples of workstations operating in CUT mode are:

- IBM 3270 workstation if customized for CUT mode
- All workstations working with the IBM workstation 3270 Emulation Program, Entry Level
- All workstations working with the IBM Workstation/Host File Transfer and Emulation Program
- All workstations working with the IBM OS/2 Extended Edition Communication Manager if customized for ASCII mode.

Following is a **selection of attachments** for IBM workstations operating in CUT mode:

- The Work Station Subsystem Controller available with IBM ES/9221 series processors.
- Any model of an IBM 3174/3274 control unit. No special configuration support is required for such a control unit.

To define a workstation in CUT mode, specify at the logical unit level the DEVICE NAME (or select from the *Selection List: Devices*):

24X80, 32X80, ...

Be sure that **this definition** agrees with how you **configured your workstation**.

ASCII Attachments:

IBM workstations operating in ASCII emulation mode are treated like 3278-2 display stations. IBM workstations of this type can be attached to:

- The IBM 3708 Network Conversion Unit or the IBM 3710 Network Controller; these are defined to VTAM like an IBM 3274-51C/61C remote control unit
- The IBM 3174 control unit with the ASCII Emulation Adapter
- The ASCII Subsystem Controller available with IBM ES/9221 series processors. In this case, an IBM workstation is treated as a local non-SNA display station.

Defining Remote Non-SNA Devices

This section describes how you configure **remote** non-SNA devices. **Local** non-SNA devices have been discussed in Chapter 2, "Configuring a Communications Device" on page 37.

Remote non-SNA devices connect to the host via BSC lines. There are no VSE/ESA dialogs to support the configuration of remote non-SNA devices.

The following sections give some directions on

- **ICA-attached** devices.
- **NCP-controlled** devices.
- Emulation Program-controlled devices.

ICA-Attached Devices

This configuration can best be understood through an example. See Figure 62.

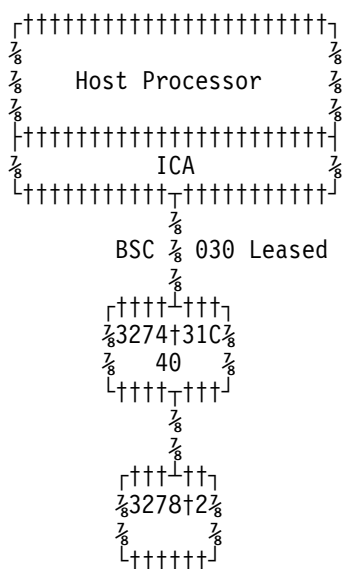


Figure 62. Example Configuration of an ICA-Attached Non-SNA Device

You define the non-SNA devices to VTAM via a *major node* of TYPE=CA. Prior to defining the major node, collect the following information:

1. Define the communication adapter, that is, the **number of lines** attached to it (maximum of eight).
2. Each must have a **unique address** (from 030 to 037).
3. **Line group characteristics** such as polled vs. non-polled terminals and leased vs. switched lines. All lines must be grouped by the same characteristics.
4. **Line characteristics** such as clusters and terminals attached to the lines.

For the **cluster controller**, you need:

- A unique user-defined resource name.
- The type and model.

- The polling characters.
- The application to which terminals attached to this cluster will automatically be logged on.

For the **terminals** attached to the cluster, you need:

- A unique user-defined resource name.
- The address.
- Type and model.
- The application to which the terminals will automatically be logged on.

After you have collected the information, proceed by actually defining the major node. Create a VSE/ICCF member which you will later catalog into library PRD2.CONFIG. You must also include this major node in the VTAM Configuration List (see “Configuration List” on page 195).

The major node for the example configuration is shown in Figure 63. You define the major node in a **VBUILD** macro with TYPE=CA.

```

XMPNSNA  VBUILD TYPE=CA
GRH1      GROUP LNCTL=BSC
LNK03005  LINE  ADDRESS=030
CRH0C40   CLUSTER GPOLL=40,CUTYPE=3271
D72R300   TERMINAL CUADDR=40,                                X
              TERM=3277,                                     X
              ISTATUS=ACTIVE,                                X
              LOGAPPL=DBDCCICS,                               X
              FEATUR2=(MODEL2)

```

Figure 63. VTAM Major Node Definition for BSC Protocol

The macro has the following entries:

GROUP Defines the line as a BSC line.

LINE Specifies the channel unit (cuu) address.

CLUSTER Defines the control unit to which the terminals are attached. In a non-SNA environment, each control unit has a special polling address assigned to it. The first control unit has polling address '40' (GPOLL=40), the second control unit 'C1', and so on.

The control unit type (CUTYPE) is 3271 or 3275. SNA control units IBM 3274/3174 and IBM 3276 on a BSC line are defined as 3271.

TERMINAL Defines the terminal address (**CUADDR**), which is also called *device selection character*. Similar to assigning polling addresses to control units, you need device selection characters for each terminal. '40' is the first character, 'C1' the second, and so on.

Specify **TERM** as:

- 3277 for the 3277, 3278, 3279
- 3284 for the 3284
- 3286 for the 3286, 3287, 3288, or 3289

Remote Non-SNA Devices

ISTATUS=ACTIVE means that this terminal will be activated when its associated major node is activated.

LOGAPPL=DBDCCICS specifies the name of the *application major node* to which the terminal will automatically be logged on. If you do not specify LOGAPPL, the operator or the application program must initiate the logon.

FEATUR2=(MODEL2) indicates 1920-character screen size or print buffer.

Note: On a BSC line, VTAM does not support Extended Data Stream.

Just like the major node definition in VTAM, you must create the CICS Terminal Control entries manually. Because the CICS Transaction Server only accepts *migrated* TCT entries, you must create your CICS Terminal Control entries by:

1. Using the CICS autoinstall facility (if possible)
2. Defining the terminals using the CEDA transaction of the Resource Definition Online (refer to the IBM manual *CICS TS Operations and Utilities Guide* SC33-1654 for details)
3. Using the CICS Transaction Server batch utility DFHCSDUP (refer to the IBM manual *CICS TS Operations and Utilities Guide* SC33-1654 for details)
4. Migrating your *old* TCTs using the CICS Transaction Server batch utility DFHCSDUP.

You can also attach an IBM workstation. Working in 3277/3278 emulation mode, you may invoke the workstation Move Utilities dialog. Also, remote operation of the system console is possible from these non-SNA BSC terminals running under VTAM.

ICA-Attached VSE/POWER RJE Work Stations:

In addition to defining the Communication Adapter major node to VTAM, you use skeleton SKPWRBSC to define the Work Stations. You then regenerate VSE/POWER using skeleton SKPWRGEN.

NCP-Controlled Devices

VSE/ESA does not provide any dialogs to configure non-SNA NCP-attached devices. You have to do this manually, that is, code a set of NCP macros structured like so:

```
GROUP LNCTL=BSC,  
  
LINE  
  
SERVICE ORDER  
  
CLUSTER CUTYPE  
  
TERMINAL  
  
TERMINAL  
  
TERMINAL  
...
```

You insert this into the remainder of your NCP definitions, **prior to the SDLC** part (if there is any).

If you configured other NCP-attached (SNA) devices, most likely by using the VSE/ESA dialogs, you have already a working structure of an NCP. It is then fairly easy to add the non-SNA part. But if all your NCP-attached devices are non-SNA, you must, of course, code the **entire** NCP yourself.

For any detailed information refer to the publications of NCP.

Emulation Program-Controlled Devices

VTAM provided with VSE/ESA 2.4 does not support emulation mode. You might, however, have also installed **BTAM** with VSE/ESA 2.4 and are using the Emulation Program (EP) for the IBM Communications Controller. For further information about EP, refer to the edition of this book covering VSE/ESA 2.1 or earlier, and the appropriate emulation program guide and reference manuals.

Remote Non-SNA Devices

Chapter 4. Configuring a Multiple-Domain Network

This chapter describes how you configure a network that is made up of two or more single domains. In a multiple-domain network, sometimes called *cross-domain* network, single domains (or processors, or *System Services Control Points*) are interconnected.

The following topics will be discussed:

- The operating systems that are cross-domain partners of a VSE/ESA domain
- The tools that VSE/ESA offers
- The sequence of steps you have to go through
- Configuration examples

Cross-Domain Partners of a VSE/ESA Domain

A VSE/ESA system as part of a cross-domain network can be connected to

- Another VSE/ESA system
- An OS/390 system.

A connection between a VSE/ESA domain and a VM system via a Remote Spooling and Communication Subsystem (RSCS) is not considered an SNA cross-domain network.

From a practical-use point of view, the VSE/ESA domain can be a partner in a peer-to-peer connection, or a subordinate to a host (OS/390 for example). But the particular practical application has no bearing on the way you define the network.

The Network Definition Tape

The VSE/ESA Interactive Interface has no dialogs for the configuration of cross-domain networks. Instead, VSE/ESA as delivered to you contains a *network skeleton*. The network skeleton defines

- VTAM books
- the VSE/POWER PNET network definition table (NDT)
- some special VSE/ICCF members.

The skeleton's definitions are only valid for **subarea networks**. The following chapter, Chapter 5, "Connecting Two VSE/ESA Hosts in an APPN Network - An Example" on page 183, gives some hints about connecting two VSE/ESA systems in an APPN network.

In a cross-domain network, a domain may need to use resources that belong to another domain. These resources must then be known (*defined*) not only in the domain to which they belong but also in the domain that uses them "from the outside." This is what the network skeleton achieves, among other things.

The network skeleton accommodates the following connections:

Overview of Cross-Domain Definition

1. From one **ICA** (Integrated Communication Adapter), such as the **TSC** (the Telecommunication Subsystem Controller of the IBM ES/9221), to another **ICA**.
This connection runs either through an SDLC line or through an X.25 network.
This connection is either permanent (*leased*) or switched (*dialed*).
2. From one **TRA** (IBM Token-Ring Adapter) to another.
3. **CTCA** (channel-to-channel adapter).

The network skeleton does not support an NCP cross-domain connection.

The filled-in network skeleton is input for the creation of a *network definition tape*. Creation of the tape is done using a dialog. See "Creating a Network Tape" on page 138.

You can use the network tape in two ways:

1. For the domain where you create the tape.
You install the tape at your domain, using the *Install a Network Tape* dialog (see "Installing a Network Tape" on page 139). In other words, you "send" the tape to yourself.
2. For another domain
In this case, you are the central administrator and fill out the skeleton with network definitions for **another VSE/ESA domain**. You send the tape to that domain where it will be *installed*.

A VSE/ESA installation (domain) can fill out the VSE/ESA network skeleton only for another **VSE/ESA** installation, not for an OS/390 installation. (If you wanted to make network definitions available to this installation, you would have to use a different format.)

A non-VSE/ESA installation can serve as central administration (*host*) and send a network tape to you (the *subhost*) with network definitions for your installation. The tape must, of course, contain definitions in VSE/ESA network skeleton format.

Overview of Cross-Domain Definition

This section lists all the steps that are necessary to define a cross-domain network. An important step is the completion of the network skeleton. The next section will describe this in detail.

Defining the cross-domain network consists of the following steps:

1. Copy the network definition skeleton to your primary library
2. Gather information about your network
3. Fill out the network skeleton
4. Create the network tape
5. Install the network tape
6. Change VTAM startup options
7. Change VTAM application names
8. Change application ID in the SIT of the CICS Transaction Server

9. Generate VSE/POWER
10. Update the VSE/POWER startup procedure

Each step will be explained in more detail in the following sections.

Copying SKDTRNET to the Primary Library

Use, in *command mode*, the VSE/ICCF command LIBRP to "punch" SKDTRNET.B from the system sublibrary IJSYSRS.SYSLIB to your primary library as member SKDTRNET:

```
librp ijsysrs.syslib skdtrnet.b skdtrnet
```

This copy operation causes three VSE JCL statements to be included. Close to the top of the member:

```
'CATALOG SKDTRNET.B    EOD=xx    REPLACE=YES'
```

Close to the bottom of the member:

```
'xx'  
'/*'
```

(where 'xx' is any 2-character EOD delimiter).

Edit the member to delete these statements.

Gathering Network Information

You should determine, ahead of time, all the information required for the definition of the cross-domain network. This includes:

- System IDs (nodenames)
- cross-domain lines
- cross-domain terminals (terminals that can access the other domain)
- cross-domain resource manager

Take into account the VSE/ESA naming conventions; see Appendix A, "Naming Convention" on page 221.

Completing the Network Skeleton

This subject will be discussed in a separate section. See "Filling out the Network Skeleton (SKDTRNET)" on page 143. Using a simple example of a cross-domain network, you will learn how to fill out each part of the skeleton.

The structure of the network skeleton is specifically geared toward

- ICA to ICA
- TRA to TRA
- CTCA.

connections.

An example for an NCP-to-NCP definition is also shown, this one of course created without using a network skeleton. See "Example NCP-to-NCP Configuration" on page 174.

The VSE/ESA Unattended Node Support is introduced in section “Unattended Operation of Remote Nodes” on page 26, and it is documented in the IBM manual *VSE/ESA Unattended Node Support* SC33-6712 .

Installing a Network Tape

This task, just like the *creation* of the network tape, is supported by a dialog.

Starting with the *VSE/ESA Function Selection* panel, select:

1 (Installation)

5 (Install Network Tape)

```

[+ + + + +] [+ + + + +]
7/8 Administrator 7/8 Synonym 7/8
7/8 Fast Path: 15 7/8 7/8 Default: _____ Yours: 7/8
[+ + + + +] [+ + + + +]

```

After you enter the required information (tape address and label), the dialog places the job INSTNET into your primary library. For its contents see Figure 65.

Some time after the install job INSTNET has started running, it informs you that the VSE/ICCF library (file name DTSFILE) must be disconnected. In command mode, issue the VSE/ICCF command /DISCONN DTSFILE.

```

* $$ JOB JNM=INSTNET,DISP=D,PRI=3,
* $$ NTFY=YES,
* $$ LDEST=*,
* $$ CLASS=0
* $$ LST,DISP=H
// JOB INSTNET INSTALL NETWORK DEFINITIONS
* *****
* WARNING: LATER YOU WILL BE ASKED TO DISCONNECT THE DTSFILE
*
* PLEASE MOUNT THE NETWORK DEFINITION TAPE NETTAPE
* ON DEVICE 280
* WHEN TAPE IS MOUNTED HIT ENTER TO CONTINUE.
* *****
// PAUSE
// OPTION NODUMP
// MTC REW,280
// ASSGN SYS020,SYSRDR
// ASSGN SYSIN,280
// MTC RUN,280
/*
/&
* $$ EQJ

```

Figure 65. Install Network Tape - Job INSTNET

Remember that a network tape has to be installed for each VSE/ESA domain that is a member of the cross-domain network.

Changing VTAM Startup Options

Prior to setting your cross-domain network into operation, a VTAM startup option must be adjusted:

HOSTSA - the **host** subarea number (a decimal number) of **this** domain.

After you installed the network tape (see the preceding section), library 59 has a member DTR\$NET. This member contains instructions for the administrator. These instructions include the value that you should use for HOSTSA.

A VSE/ESA dialog helps you change the VTAM startup options.

Starting with the *VSE/ESA Function Selection* panel, select:

2 (Resource Definition)

6 (Maintain VTAM Startup Options)

```

|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
|/8 Administrator |/8 /8 Synonym |/8 |
|/8 Fast Path: 26 |/8 /8 Default: |/8 Yours: |/8
|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|

```

After you enter the options, a new list of startup options is stored in library 51. Also, the dialog builds a job to catalog the new options list as member ATCSTR00.B in library PRD2.CONFIG. See also Figure 103 on page 194 for the default startup options list ATCSTR00.B.

The VTAM resource names ("netname") of cross-domain systems initially created by the dialogs **may** be identical. Duplicate netnames must be avoided at all cost.

When you use the above dialog to change the HOSTSA value, you get prompted for *automatic renaming* of VTAM resources. A reply of **1** (=yes) replaces the default **host** subarea in the VTAM netname by the new subarea value. This would establish uniqueness of resource names.

Note: Do not opt for automatic renaming if you had deviated from the Hardware Configuration dialog's naming conventions (see Appendix A, "Naming Convention" on page 221). Automatic renaming could interfere with your own naming scheme by overriding the right-most positions of the netname which contain the subarea number.

Supplying VTAM Application Names

As explained in the preceding section, the resource names of cross-domain systems initially created by the dialogs **may** be identical. To avoid duplicate names, change resource names as needed.

After you installed the network tape (see "Installing a Network Tape" on page 139), library 59 has a member DTR\$NET. This member contains instructions for the administrator. They tell you, among other things, which application names to use.

A VSE/ESA dialog helps you change the VTAM application names.

Starting with the *VSE/ESA Function Selection* panel, select:

2 (Resource Definition)

5 (Maintain VTAM Application Names)

```

[+++++Administrator+++++] [+++++Synonym+++++]
[7/8] [7/8] [7/8] [7/8]
[7/8 Fast Path: 25] [7/8 Default: _____ Yours: _____]
[+++++Fast Path: 25+++++] [+++++Default: _____ Yours: _____+++++]

```

After you enter the application names, a job is created which catalogs member VTMAPPL.B in library PRD2.CONFIG. See also Figure 105 on page 197 for the default application program major node VTMAPPL.B.

Changing Application-ID in the SIT

Now that you have defined unique application names, you must update the System Initialization Table (SIT) of each affected domain.

As an example, you may have created an entry in VTMAPPL.B

```
VSE1CICS APPL AUTH=(PASS,ACQ),ACBNAME=...,...
```

The SIT still carries the default specification

APPLID=DBDCCICS

Edit member DFHSITSP in library 59 to say:

APPLID=VSE1CICS

Request a compile-and-catalog run to create an updated member DFHSITSP.PHASE in library PRD2.CONFIG.

Also, change the SIT parameter in the CICS startup job accordingly.

Note: If you change the APPLID in the SIT and are also using *prefixing* for security (i.e. SECPRFX=YES), you must define a corresponding Userid in the Control File. You can use DBDCCICS as a model.

Generating VSE/POWER

Copy member SKPWRGEN from library 59 into your primary library and change the following parameters:

- Label in POWER macro

This provides a unique name for the VSE/POWER phase. You will have to specify the same name in the POWSTRn procedure; see the following section.

- SNA

Insert SNA=YES,

- PNET

Insert PNET=phasename of the Network Definition Table.

Member DTR\$NET in library 59 instructs you which name to use.

Submit the job POWERGEN which makes up the contents of SKPWRGEN (see also “VSE/POWER Generation Skeleton SKPWRGEN” on page 227). The job catalogs an updated VSE/POWER phase.

Updating the VSE/POWER Startup Procedure

Change two parameters in the VSE/POWER startup procedure. Skeleton SKPWSTRT in library 59 provides a job which catalogs the VSE/POWER startup procedure (see “VSE/POWER Startup Procedure Skeleton SKPWSTRT” on page 234).

Note that the skeleton as supplied to you by IBM contains the statement
CATALOG POWSTRn.PROC

where 'n' stands for the environment (A, B, or C) that you selected during initial installation.

You are expected to *tailor* the procedure name to your particular startup. For details see the section “Skeletons for Starting Up VSE/POWER” in the IBM manual *VSE/ESA Administration* SC33-6705-01.

The two parameters in skeleton SKPWSTRT to be changed are:

- VSE/POWER phasename

Replace 'IPWPOWER' in the statements

```
// EXEC IPWPOWER
```

by the new VSE/POWER phasename. This is the label in the POWER macro; see the preceding section.

- Name of VSE/POWER Network Definition Table

Specify in the statement

```
SET PNET=
```

the name of the Network Definition Table. Member DTR\$NET in library 59 instructs you which name to use.

Filling out the Network Skeleton (SKDTRNET)

The network skeleton is a member of the system sublibrary IJSYSRS.SYSLIB. Remember that, before entering information of your own, you should have copied the skeleton into your primary library as described in "Copying SKDTRNET to the Primary Library" on page 137.

The Example Configuration

An example configuration helps to become familiar with the network skeleton. The configuration is depicted in the following figure.

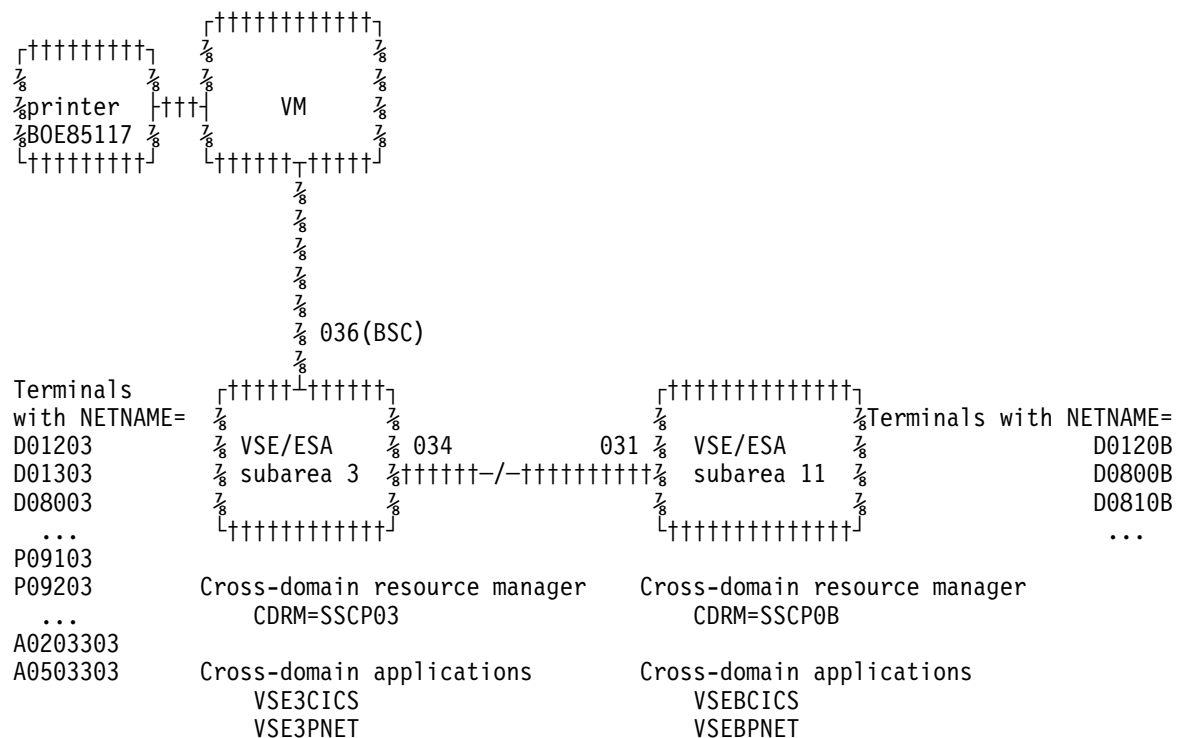


Figure 66. Example Configuration of a Cross-Domain Network

Figure 66 contains all the information (parameters) that you need to fill out the network skeletons **for both domains**.

The connection from subarea 3 to VM is a BSC connection, not a true SNA network connection. It is shown only because VSE/POWER PNET definitions will combine definitions for both types of connections. See section 'PNET1' in the network skeleton.

Filling out the Network Skeleton (SKDTRNET)

The Structure of the Network Skeleton

The network skeleton is divided into 20 sections. Each section is identified by a 3 to 6-character term, such as VTAM8 or SP3.

The first group provides **VTAM** definitions.

VTAM1 Cross-domain line connections via ICA/LAN

VTAM2 Cross-domain via ICA/X.25 leased lines (PVC)

VTAM3 Cross-domain via ICA/X.25 switched lines (SVC)

VTAM4 Cross-domain switched major node for X.25 SVC

VTAM5 Cross-domain line connections via ICA/SDLC

VTAM6 Cross-domain switched major node for SDLC lines

VTAM7 Cross-domain connection via a Channel-to-channel adapter (CTCA)

VTAM8 Cross-domain path table

VTAM9 Cross-domain resource managers

VTAM10 Cross-domain resources

VTAM11 Application logon commands

VTAM12 Application selection menu

VTAM13 System Activation of commands and messages

The second group is for **CICS definitions**.

CICS1 Terminal Entries for X-Domain Logon

CICS2 ISC Terminal Control entries

The third group is for **VSE/POWER PNET**.

PNET1 VSE/POWER network definition table (NDT)

The fourth group contains information for **VSE/ESA**.

SP1 Online information for the system administrator (member DTR\$NET)

SP2 List of PNET nodes (member PNT\$NODE)

SP3 PNET node-related JCL information and references to other JCL in section SP4 for file transfer/receive (member PNT\$JCLT)

SP4 PNET node-related JCL for file transfer/receive

Filling out the Individual Sections

This section describes the individual sections of the network skeleton. Whenever applicable, parameters from the example configuration will be used for illustration.

Note: In the following figures, the values you supply are shown twice: once within the definition statements (mandatory) and again inside the 'L E G E N D' (optional, shown only in this publication for clarity). For example, in Figure 68 on page 147, you find the line address 034 once in the statement

```
LNK03403 LINE      ADDRESS=034,MAXBFRU=(15,60)
```

and then again inside the 'L E G E N D'

```
--V103-- :   PHYSICAL LINE ADDRESS      -
          034                                -
```

The example values refer to the first VSE/ESA domain (subarea 03). But remember that a second skeleton has to be completed for the other domain, with the parameters adjusted accordingly.

VTAM1 Cross-domain line connections via ICA/LAN

VTAM2 Cross-domain via ICA/X.25 leased lines (PVC)

VTAM3 Cross-domain via ICA/X.25 switched lines (SVC)

VTAM4 Cross-domain switched major node for X.25 SVC

Because the cross-domain connections in the example are made via ICA-to-ICA SDLC lines, not via a Token-Ring or an X.25 network, the above four sections are not relevant. The definition statements are "deactivated" by asterisks, as shown in the following figure (section VTAM1).

The other three sections: VTAM2, VTAM3, VTAM4 are not shown here. If you want to look at them, please refer to the skeleton in its original form.

Filling out the Network Skeleton (SKDTRNET)

```

ACCESS SUBLIB=PRD2.CONFIG
/* ----- BEGIN OF NETWORK DEFINITION SKELETON -----
-
-
-
VTAM DEFINITIONS
-
-
-
--VTAM1----- X-DOMAIN LINE CONNECTIONS VIA ICA/LAN */
CATALOG VTMLAN.B REPLACE=YES
*
*TMLAN    VBUILD TYPE=LAN
*-VL01-- PORT    CUADDR=--VL02--,
*          LANCON=(2,2),MAXDATA=2012,
*          MACADDR=--VL03--,SAPADDR=--VL04--
*-VL05-- GROUP   DIAL=NO,LNCTL=SDLC,ISTATUS=ACTIVE
*-VL06-- LINE    ISTATUS=ACTIVE
*-VL07-- PU      MACADDR=--VL08--,SAPADDR=--VL09--
*
/+
/* L E G E N D
-
-
--VL01-- :   MINOR NODE NAME OF OWN LAN PORT
--VL02-- :   CHANNEL UNIT ADDRESS OF OWN LAN ADAPTER
-
NOTE:
-
BE AWARE THAT VTAM ALLOWS JUST ONE LAN MAJOR NODE
-
PER CUADDR, I.E. IN CASE YOU DEFINED LAN CONTROLLED
-
WORKSTATIONS BY USING VSE/ESA DIALOGS FOR
-
CUADDR=--VL02--, THOSE DEFINITIONS CONTAINED IN
-
VTMTRLx.B MUST BE MERGED WITH VTMLAN.B.
-
--VL03-- :   MEDIUM ACCESS CONTROL ADDRESS OF OWN LAN ADAPTER
--VL04-- :   SERVICE ACCESS POINT ADDRESS OF OWN LAN ADAPTER
--VL05-- :   MINOR NODE NAME OF THE LINE GROUP
--VL06-- :   MINOR NODE NAME OF THE COMMUNICATION LINE
--VL07-- :   MINOR NODE NAME OF THE ATTACHED PHYSICAL UNIT
--VL08-- :   MEDIUM ACCESS CONTROL ADDRESS OF THE ATTACHED
-
LAN ADAPTER
-
--VL09-- :   SERVICE ACCESS POINT ADDRESS OF THE ATTACHED
-
LAN ADAPTER
-
-
N O T E :   PLACE AN * IN FRONT OF THE VBUILD, PORT, GROUP,
-
LINE, AND PU STATEMENTS WHEN THE VSE/ESA SYSTEM
-
CONFIGURATION HAS NO INTEGRATED COMMUNICATION
-
ADAPTER (ICA) OR TELECOMMUNICATION SUBSYSTEM
-
CONTROLLER OR FLAG THOSE PARTS WHICH ARE NOT USED.
-
DO NOT DELETE THIS PART OF THE NETWORK DEFINITION.
-
-

```

Figure 67. Inactive Section of Network Skeleton - Example

VTAM5 - X-Domain Line Connections via an ICA/SDLC

Because the example is for a two-domain network, you need only one pair of LINE and PU statements. If more than one domain were connected, you would have to duplicate the LINE and PU statements for each additional domain.

```

--VTAM5----- X-DOMAIN LINE CONNECTIONS VIA ICA/SDLC */
CATALOG VTMCA2.B REPLACE=YES
*
VTMCA2  VBUILD  TYPE=CA
GROUP103 GROUP  DIAL=NO, ISTATUS=ACTIVE, LNCTL=SDLC
LNK03403 LINE  ADDRESS=034, MAXBFRU=(15,60)
PU103403 PU    PUTYPE=5, SUBAREA=11
*
*-V111-- GROUP  DIAL=YES, SUBADIAL=YES, LNCTL=SDLC, CALL=INOUT
*-V112-- LINE   ADDRESS=--V113--, MAXBFRU=(15,60), AUTO=--V113--
*-V114-- PU     ISTATUS=ACTIVE
*
/+
/* L E G E N D
--V101-- : MINOR NODE NAME OF THE LINE GROUP
GROUP103
--V102-- : MINOR NODE NAME OF THE COMMUNICATION LINE
LNK03403
--V103-- : PHYSICAL LINE ADDRESS
034
--V104-- : MINOR NODE NAME OF THE PHYSICAL UNIT
PU103403
--V105-- : ATTACHED PHYSICAL UNIT TYPE (4 FOR NCP, 5 FOR VTAM)
5
--V106-- : SNA SUBAREA NUMBER OF ATTACHED PHYSICAL UNIT
11
--V111-- : MINOR NODE NAME OF THE LINE GROUP
          THIS NAME MUST MATCH THE GROUP NAME --VT09-- IN
          YOUR SWITCHED MAJOR NODE VTMCA4.
--V112-- : MINOR NODE NAME OF THE COMMUNICATION LINE
--V113-- : PHYSICAL LINE ADDRESS
--V114-- : MINOR NODE NAME OF THE PHYSICAL UNIT

N O T E : PLACE AN * IN FRONT OF THE VBUILD, GROUP, LINE AND
          PU STATEMENTS WHEN THE VSE/ESA SYSTEM CONFIGURATION
          HAS NO INTEGRATED COMMUNICATION ADAPTER (ICA)
          OR TELECOMMUNICATION SUBSYSTEM CONTROLLER
          OR FLAG THOSE PARTS WHICH ARE NOT USED.
          DO NOT DELETE THIS PART OF THE NETWORK DEFINITION.

```

Figure 68. Cross-Domain Line Connections

Note that the PU statement specifies the subarea number of **the other domain**. The specifications in the other domain's skeleton would look like this:

```

VTMCA2  VBUILD  TYPE=CA
GROUP10B GROUP  DIAL=NO, ISTATUS=ACTIVE, LNCTL=SDLC
LNK0310B LINE  ADDRESS=031, MAXBFRU=(15,60)
PU10310B PU    PUTYPE=5, SUBAREA=3

```

The second set of GROUP, LINE, PU statements has been flagged with an * because the line connection in the example is a leased line, not a switched (*subarea dial*) line.

Filling out the Network Skeleton (SKDTRNET)

VTAM6 - X-Domain Switched Major Node

This part is associated with the second set of GROUP, LINE, PU statements of the preceding part. Because the line connection in the example is a leased line, not a switched (*subarea dial*) line, no values need be supplied. Consequently, the VBUILD, PU, and PATH statements are flagged with an *.

```
--VTAM6----- X-DOMAIN SWITCHED MAJOR NODE FOR SDLC LINES */
CATALOG VTMCA4.B REPLACE=YES
*
*TMCA4  VBUILD TYPE=SWNET,MAXNO=--VT01--,MAXGRP=--VT02--
*-VT03-- PU    PUTYPE=5,SUBAREA=--VT04--,DISCNT=YES,          *
*          ADDR=C1,IDNUM=--VT05--,MAXPATH=--VT06--
*-VT07-- PATH  DIALNO=--VT08--,GRPNM=--VT09--
*
/*+
/* L E G E N D
--VT01-- :  NUMBER OF UNIQUE PHONE# DEFINED IN PATH STATEMENTS
--VT02-- :  NUMBER OF GROUPS DEFINED IN THE VTAM CA MAJOR NODE
--VT03-- :  MINOR NODE NAME OF THE PHYSICAL UNIT
--VT04-- :  SNA SUBAREA NUMBER OF ATTACHED PHYSICAL UNIT
--VT05-- :  20BIT IDENTIFICATION NUMBER (STATIONS)
            IT IS USED TO CORRELATE THE PU DEFINITIONS BETWEEN
            THE TWO SSCPS THAT OWN EACH END OF THE SWITCHED
            LINE, THE SAME IDNUM MUST BE SPECIFIED ON THE
            PU DEFINITIONS FOR BOTH LINK STATIONS. IT MUST BE
            UNIQUE FOR ALL PU DEFINITIONS WITHIN AN SSCP.
--VT06-- :  MAXIMAL NUMBER OF PATH STATEMENTS
--VT07-- :  MINOR NODE NAME OF THE PATH
--VT08-- :  PHONE# USED TO INITIATE A CONNECTION OVER A SWITCHED
            LINK WITH A PHYSICAL UNIT
--VT09-- :  MINOR NODE NAME OF THE GROUP WHERE THE LINK IS
            DEFINED.
            THIS NAME MUST MATCH THE GROUP NAME --V111-- IN
            YOUR SDLC MAJOR NODE VTMCA2.
N O T E :  PLACE AN * IN FRONT OF THE VBUILD, PATH AND
            PU STATEMENTS WHEN THE VSE/ESA SYSTEM CONFIGURATION
            HAS NO INTEGRATED COMMUNICATION ADAPTER (ICA) OR
            TELECOMMUNICATION SUBSYSTEM CONTROLLER OR
            FLAG THOSE PARTS WHICH ARE NOT USED.
            DO NOT DELETE THIS PART OF THE NETWORK DEFINITION.
```

Figure 69. Cross-Domain Switched Major Node

VTAM7 - X-Domain Line Connections via a CTCA

Because, in the example under consideration, the two domains are connected over a (leased) SDLC line, not over a channel-to-channel adapter (CTCA), this section of the skeleton has no entries. The definition statements are "deactivated" by asterisks.

```

--VTAM7----- X-DOMAIN LINE CONNECTIONS VIA AN CTCA */
CATALOG VTMCTCA.B REPLACE=YES
*
*VTMCTCA VBUILD      TYPE=CA
*-V201-- GROUP      ISTATUS=ACTIVE,LNCTL=CTCA
*-V202-- LINE       ADDRESS=--V203--,MAXBFRU=10
*-V204-- PU
*
/+
/* L E G E N D
--V201-- : MINOR NODE NAME OF THE LINE GROUP
--V202-- : MINOR NODE NAME OF THE COMMUNICATION LINE
--V203-- : PHYSICAL LINE ADDRESS
--V204-- : MINOR NODE NAME OF THE PHYSICAL UNIT

N O T E : PLACE AN * IN FRONT OF THE VBUILD, GROUP, LINE AND
          PU STATEMENTS WHEN THE VSE/ESA SYSTEM CONFIGURATION
          HAS NO CHANNEL TO CHANNEL ADAPTER (CTCA).
          DO NOT DELETE THIS PART OF THE NETWORK DEFINITION.

```

Figure 70. Cross-Domain CTCA Connections

VTAM8 - Cross-Domain Path Table

Because the example is for a two-domain network, you need only one path definition. If more than one domain were connected, you would have to duplicate the PATH statement for each adjacent subarea. The name VTMPATH goes only with the first PATH statement. Leave the name field of any other PATH statement blank.

```

---VTAM8----- X-DOMAIN PATH TABLE */
CATALOG VTMPATH.B REPLACE=YES
*
VTMPATH  PATH DESTSA=11,
          ER0=(11,1),
          VR0=0
*
/+
/* L E G E N D
--V301-- : SNA SUBAREA NUMBER OF DESTINATION-NODE 1
11
--V302-- : SNA SUBAREA NUMBER OF DESTINATION-NODE 2
...      : SNA SUBAREA NUMBER OF DESTINATION-NODE ...
--V303-- : SNA SUBAREA NUMBER OF ADJACENT PASS-THRU NODE
11
--V304-- : SNA TRANSMISSION GROUP NUMBER FOR THE EXPLICIT
1          ROUTE BEING DEFINED
--V305-- : SNA EXPLICIT ROUTE NUMBER TO WHICH THE VIRTUAL
0          ROUTE IS MAPPED

```

Figure 71. Cross-Domain Path Table

Filling out the Network Skeleton (SKDTRNET)

VTAM9 - Cross-Domain Resource Managers

Specify the resource manager for this domain **first** (SSCP03). Then specify the CDRM statements for the other domains.

Because the example is for a two-domain network, you need only two CDRM statements. If more than two domains were connected, you would have to duplicate the CDRM statement for each additional domain.

The specifications concerning **dynamic** cross-domain resource definition (parameters CDRDYN and CDRSC) are preset by the skeleton. If you ever change these specifications, make sure that the new values are consistent with the specifications at the other node.

```
-----VTAM9----- X-DOMAIN RESOURCE MANAGER */
CATALOG VTMCDRM.B REPLACE=YES
*
VTMCDRM  VBUILD TYPE=CDRM
SSCP03   CDRM  SUBAREA=3,CDRDYN=YES,                      *
          ISTATUS=ACTIVE,VPACING=0
SSCP0B   CDRM  SUBAREA=11,CDRSC=OPT,                       *
          ISTATUS=ACTIVE,VPACING=0
*
/*
/+
/* L E G E N D -
--V401-- : NAME OF OWN SNA CROSS-DOMAIN MANAGER -
SSCP03   NOTE: IT IS RECOMMENDED THAT THIS NAME MATCHES THE -
          NAME SPECIFIED UNDER 'SSCPNAME=' IN THE VTAM START -
          LIST. THE VSE/ESA NAMING CONVENTION IS -
          'SSCPNAME=SSCPXXXX' -
          WHERE 'XXXX' STANDS FOR THE HEXADECIMAL SUBAREA -
          NUMBER OF THE HOST DOMAIN. -
--V402-- : SNA SUBAREA NUMBER OF OWN DOMAIN -
3 -
--V403-- : NAME OF INTERCONNECTED SNA CROSS-DOMAIN MANAGER -
SSCP0B   NOTE: IT IS RECOMMENDED THAT THIS NAME MATCHES THE -
          NAME SPECIFIED UNDER 'SSCPNAME=' IN THE VTAM START -
          LIST. THE VSE/ESA NAMING CONVENTION IS -
          'SSCPNAME=SSCPXXXX' -
          WHERE 'XXXX' STANDS FOR THE HEXADECIMAL SUBAREA -
          NUMBER OF THE INTERCONNECTED DOMAIN. -
--V404-- : SNA SUBAREA NUMBER OF INTERCONNECTED DOMAIN -
11 -
-
```

Figure 72. Cross-Domain Resource Managers

VTAM10 - Cross-Domain Resources

This section of the skeleton defines minor nodes for **resources in other domains** with which an application or logical unit in this domain can have a session.

In the example here, the two applications in subarea 11 (VSEBCICS and VSEBPNET) are accessible from this domain. Specify these resource names in the leftmost portion of the CDRSC statements. In addition, specify in the CDRM

Filling out the Network Skeleton (SKDTRNET)

parameter the name of the cross-domain resource manager in the other domain (SSCP0B).

Note: The skeleton's definitions allow for *dynamic resource definition* (CDRDYN=YES and CDRSC=OPT in VTAM9 on the preceding page). Therefore, the terminals in the other domain are **not represented** by CDRSC statements in the VTAM10 section.

```
-----VTAM10----- X-DOMAIN RESOURCES */
CATALOG VTMCDRS.B REPLACE=YES
*
VTMCDRS  VBUILD  TYPE=CDRSC
VSEBCICS CDRSC   CDRM=SSCP0B
VSEBPNET CDRSC   CDRM=SSCP0B
*
/+
/* L E G E N D
--V501-- : LU NAME OF RESOURCE IN ANOTHER DOMAIN
VSEBCICS , VSEBPNET
--V502-- : NAME OF THE CDRM CONTROLLING THAT RESOURCE
SSCP0B
```

Figure 73. Cross-Domain Resources

VTAM11 - Application Logon Commands

This section of the skeleton has definitions of applications to which you can log on from this domain. In the example, these are the two CICS Transaction Server subsystems, one in each domain.

The other domain would have an identical definition.

Note that the application which resides in the other domain (VSEBCICS) is represented in the skeleton's VTAM10 section as a cross-domain resource. The following three sections, VTAM11 through VTAM13, are largely identical to skeleton SKVTMUSS in VSE/ICCF library 59.

Filling out the Network Skeleton (SKDTRNET)

```

      ----VTAM11----- APPLICATION LOGON COMMANDS */
CATALOG  VTUSSCD.A  REPLACE=YES
*
A      USSCMD  CMD=A,REP=LOGON,FORMAT=BAL
      USSPARM  PARM=P1,REP=APPLID,DEFAULT=VSE3CICS
      USSPARM  PARM=P2,REP=DATA
*
B      USSCMD  CMD=B,REP=LOGON,FORMAT=BAL
      USSPARM  PARM=P1,REP=APPLID,DEFAULT=VSEBCICS
      USSPARM  PARM=P2,REP=DATA
*
* C      USSCMD  CMD=C,REP=LOGON,FORMAT=BAL
*      USSPARM  PARM=P1,REP=APPLID,DEFAULT=--V603--
*      USSPARM  PARM=P2,REP=DATA
* *
* D      USSCMD  CMD=D,REP=LOGON,FORMAT=BAL
*      USSPARM  PARM=P1,REP=APPLID,DEFAULT=--V604--
*      USSPARM  PARM=P2,REP=DATA
* *
* E      USSCMD  CMD=E,REP=LOGON,FORMAT=BAL
*      USSPARM  PARM=P1,REP=APPLID,DEFAULT=--V605--
*      USSPARM  PARM=P2,REP=DATA
* *
* F      USSCMD  CMD=F,REP=LOGON,FORMAT=BAL
*      USSPARM  PARM=P1,REP=APPLID,DEFAULT=--V606--
*      USSPARM  PARM=P2,REP=DATA
* *
/+
/* L E G E N D
--V601-- :  NAME OF APPLICATION CORRESPONDING TO SELECTION A
VSE3CICS
--V602-- :  NAME OF APPLICATION CORRESPONDING TO SELECTION B
VSEBCICS
--V603-- :  NAME OF APPLICATION CORRESPONDING TO SELECTION C
--V604-- :  NAME OF APPLICATION CORRESPONDING TO SELECTION D
--V605-- :  NAME OF APPLICATION CORRESPONDING TO SELECTION E
--V606-- :  NAME OF APPLICATION CORRESPONDING TO SELECTION F

```

Figure 74 (Part 1 of 2). Application Logon Commands

```

      N O T E :  IF THERE IS NO APPLICATION NAME CORRESPONDING TO A
                  PARTICULAR VARIABLE, DELETE THE USSPARM STATEMENT
                  CONTAINING THE VARIABLE; ALSO, DELETE THE USSCMD
                  STATEMENT PRECEEDING IT AND THE USSPARM STATEMENT
                  FOLLOWING IT.

```

Figure 74 (Part 2 of 2). Application Logon Commands

VTAM12 - Application Selection Menu

This section of the selection has definitions for an application selection menu.

Select a meaningful term so the user can easily identify the desired application.
The term can be eight characters long.

It is only by coincidence that the example menu shows terms that are identical to the application names as defined for VTAM. The example could just as well have picked BIGCICS and TINYCICS as meaningful terms.

```

      ----VTAM12----- APPLICATION SELECTION MENU */
CATALOG  VTMSSTZ.A  REPLACE=YES
*
* THE FOLLOWING MENU WILL BE DISPLAYED ON SNA TERMINALS ONLY
*
      DC  X'15'              NEW LINE (ROW 5)
      DC  CL9'  '
      DC  CL2'A  '
      DC  CL8'VSE3CICS'
*
      DC  X'15'              NEW LINE (ROW 6)
      DC  CL9'  '
      DC  CL2'B  '
      DC  CL8'VSEBCICS'
*
      DC  X'15'              NEW LINE (ROW 7)
      DC  CL9'  '
      DC  CL2'C  '
      DC  CL8'_____ '
*
      DC  X'15'              NEW LINE (ROW 8)
      DC  CL9'  '
      DC  CL2'D  '
      DC  CL8'_____ '
*
      DC  X'15'              NEW LINE (ROW 9)
      DC  CL9'  '
      DC  CL2'E  '
      DC  CL8'_____ '
*
      DC  X'15'              NEW LINE (ROW 10)
      DC  CL9'  '
      DC  CL2'F  '
      DC  CL8'_____ '
/+
```

Figure 75 (Part 1 of 3). Application Selection Menu

Filling out the Network Skeleton (SKDTRNET)

```
CATALOG VTMSSTX.A REPLACE=YES
*
* THE FOLLOWING MENU WILL BE DISPLAYED ON NON-SNA TERMINALS ONLY
*
      DC      X'11'          SET BUFFER ADDRESS ORDER
      DC      X'C5C9'        ROW 5 COLUMN 10
      DC      X'1D'          START FIELD ORDER
      DC      X'F8'          PROTECT SKIP INTENSIFIED ATTRIBUTE
      DC      CL2'A '
      DC      X'1D'          START FIELD
      DC      X'F0'          PROTECT SKIP NORMAL
      DC      CL8'VSE3CICS'
*
      DC      X'11'          SET BUFFER ADDRESS ORDER
      DC      X'C6D9'        ROW 6 COLUMN 10
      DC      X'1D'          START FIELD ORDER
      DC      X'F8'          PROTECT SKIP INTENSIFIED ATTRIBUTE
      DC      CL2'B '
      DC      X'1D'          START FIELD
      DC      X'F0'          PROTECT SKIP NORMAL
      DC      CL8'VSEBCICS'
*
      DC      X'11'          SET BUFFER ADDRESS ORDER
      DC      X'C7E9'        ROW 7 COLUMN 10
      DC      X'1D'          START FIELD ORDER
      DC      X'F8'          PROTECT SKIP INTENSIFIED ATTRIBUTE
      DC      CL2'C '
      DC      X'1D'          START FIELD
      DC      X'F0'          PROTECT SKIP NORMAL
      DC      CL8'_____ '
*
      DC      X'11'          SET BUFFER ADDRESS ORDER
      DC      X'C8F9'        ROW 8 COLUMN 10
      DC      X'1D'          START FIELD ORDER
      DC      X'F8'          PROTECT SKIP INTENSIFIED ATTRIBUTE
      DC      CL2'D '
      DC      X'1D'          START FIELD
      DC      X'F0'          PROTECT SKIP NORMAL
      DC      CL8'_____ '
```

Figure 75 (Part 2 of 3). Application Selection Menu

```

*
      DC      X'11'                SET BUFFER ADDRESS ORDER
      DC      X'4AC9'              ROW 9 COLUMN 10
      DC      X'1D'                START FIELD ORDER
      DC      X'F8'                PROTECT SKIP INTENSIFIED ATTRIBUTE
      DC      CL2'E '
      DC      X'1D'                START FIELD
      DC      X'F0'                PROTECT SKIP NORMAL
      DC      CL8'_____ '

*
      DC      X'11'                SET BUFFER ADDRESS ORDER
      DC      X'4BD9'              ROW 10 COLUMN 10
      DC      X'1D'                START FIELD ORDER
      DC      X'F8'                PROTECT SKIP INTENSIFIED ATTRIBUTE
      DC      CL2'F '
      DC      X'1D'                START FIELD
      DC      X'F0'                PROTECT SKIP NORMAL
      DC      CL8'_____ '

*
/+
/* L E G E N D
--V701-- : APPLICATION NAME (MUST BE 8 CHARACTERS OR LESS)
VSE3CICS
--V702-- : APPLICATION NAME (MUST BE 8 CHARACTERS OR LESS)
VSEBCICS
_____ : APPLICATION NAME (MUST BE 8 CHARACTERS OR LESS)
_____ : APPLICATION NAME (MUST BE 8 CHARACTERS OR LESS)
_____ : APPLICATION NAME (MUST BE 8 CHARACTERS OR LESS)
_____ : APPLICATION NAME (MUST BE 8 CHARACTERS OR LESS)
N O T E : IF THERE IS NO APPLICATION NAME CORRESPONDING TO A
          PARTICULAR VARIABLE, REPLACE IT WITH _____ TO
          INDICATE THAT THERE IS NO NAME.

```

Figure 75 (Part 3 of 3). Application Selection Menu

VTAM13 - System Activation of Commands and Messages

This section consists of assembly and link-edit steps.

You are not expected to supply any input. Therefore, this section of the skeleton is not shown here. If you want to look at it, please refer to the skeleton in its original form.

CICS1 - Terminal Control Entries for Cross-Domain Logon

Terminals at **other domains** which are allowed to log on at this domain must be defined to the CICS Transaction Server of **this node**. You can do this in two ways:

1. Using the CICS Transaction Server transactions CEDA and CEDB.

These transactions allow online definitions to the CICS System Definition (CSD) file. Please refer to the IBM manual *CICS Resource Definition Guide* SC33-0708 if you want to use this approach.

2. Using skeleton SKDTRNET which generates Terminal Control entries. You use the CICS utility DFHCSDUP to upgrade the CSD file (please refer to the IBM

Filling out the Network Skeleton (SKDTRNET)

manual *CICS TS Operations and Utilities Guide* SC33-1654 for details). The remainder of this section only discusses this approach.

Two types of terminal attachments must be accounted for:

- **Local** attachment at the other node (TRMTYPE=3270)
- **Remote** attachment at the other node (TRMTYPE=LUTYPE2)

Also, your VSE/ESA contains up to three groups of Terminal Entries. Consequently, this section of the skeleton has the following structure:

```
DTRTCT1X
- local terminals
- remote terminals
DTRTCT2X
- local terminals
- remote terminals
DTRTCT3X
- local terminals
- remote terminals
```

Using the skeleton, duplicate the DEFINE TERMINAL entry for each cross-domain terminal, and then follow the instructions provided in the skeleton SKDTRNET shown below.

```

      ----CICS1----- TERMINAL ENTRIES FOR X-DOMAIN LOGON */
ACCESS SUBLIB=PRD2.CONFIG
CATALOG DTRTCT1X.Z REPLACE=YES
*****
* TERMINAL DEFINITION FOR X-DOMAIN  L O C A L  ATTACHED TERMINALS      *
*                                OF TYPE 'L3277'                        *
*****
DEFINE TERMINAL(--C101--)
      GROUP(--C102--)
      DEFSCREEN(24,80)
      ALTSCREEN(--C103--,80)
      AUDIBLEALARM(--C104--)
      COLOR(--C104--)
      EXTENDEDDES(--C104--)
      HILIGHT(--C104--)
      PARTITIONS(--C104--)
      NETNAME(--C105--)
      RELREQ(YES)
      DISCREQ(YES)
      USERAREALEN(255)
      IOAREALEN(1024,4096)
*****
* TERMINAL DEFINITION FOR X-DOMAIN  R E M O T E  ATTACHED TERMINALS    *
*                                OF TYPE 'LUTYPE2'                      *
*****
DEFINE TERMINAL(--C101--)
      GROUP(--C102--)
      DEFSCREEN(24,80)
      ALTSCREEN(--C103--,80)
      BRACKET(YES)
      DEVICE(LUTYPE2)
      SENDSIZE(1536)
      RECEIVESIZE(1024)
      BUILDCHAIN(YES)
      AUDIBLEALARM(--C104--)
      COLOR(--C104--)
      EXTENDEDDES(--C104--)
      HILIGHT(--C104--)
      PARTITIONS(--C104--)
      NETNAME(--C105--)
      RELREQ(YES)
      DISCREQ(YES)
      USERAREALEN(255)
      IOAREALEN(1024,4096)
/+
```

Figure 76 (Part 1 of 3). Terminal Control Entries for Cross-Domain Logon

Filling out the Network Skeleton (SKDTRNET)

```
CATALOG DTRTCT2X.Z REPLACE=YES
*****
* TERMINAL DEFINITION FOR X-DOMAIN  L O C A L  ATTACHED TERMINALS      *
*                                OF TYPE 'L3277'                        *
*****
DEFINE TERMINAL(--C101--)
    GROUP(--C102--)
    DEFSCREEN(24,80)
    ALTSCREEN(--C103--,80)
    AUDIBLEALARM(--C104--)
    COLOR(--C104--)
    EXTENDEDDES(--C104--)
    HILIGHT(--C104--)
    PARTITIONS(--C104--)
    NETNAME(--C105--)
    RELREQ(YES)
    DISCREQ(YES)
    USERAREALEN(255)
    IOAREALEN(1024,4096)
*****
* TERMINAL DEFINITION FOR X-DOMAIN  R E M O T E  ATTACHED TERMINALS    *
*                                OF TYPE 'LUTYPE2'                      *
*****
DEFINE TERMINAL(--C101--)
    GROUP(--C102--)
    DEFSCREEN(24,80)
    ALTSCREEN(--C103--,80)
    BRACKET(YES)
    DEVICE(LUTYPE2)
    SENDSIZE(1536)
    RECEIVESIZE(1024)
    BUILDCHAIN(YES)
    AUDIBLEALARM(--C104--)
    COLOR(--C104--)
    EXTENDEDDES(--C104--)
    HILIGHT(--C104--)
    PARTITIONS(--C104--)
    NETNAME(--C105--)
    RELREQ(YES)
    DISCREQ(YES)
    USERAREALEN(255)
    IOAREALEN(1024,4096)
/+
CATALOG DTRTCT3X.Z REPLACE=YES
*****
* TERMINAL DEFINITION FOR X-DOMAIN  L O C A L  ATTACHED TERMINALS      *
*                                OF TYPE 'L3277'                        *
*****
DEFINE TERMINAL(--C101--)
    GROUP(--C102--)
    DEFSCREEN(24,80)
    ALTSCREEN(--C103--,80)
```

Figure 76 (Part 2 of 3). Terminal Control Entries for Cross-Domain Logon


```

        AUDIBLEALARM(--C104--)
        COLOR(--C104--)
        EXTENDEDDES(--C104--)
        HIGHLIGHT(--C104--)
        PARTITIONS(--C104--)
        NETNAME(--C105--)
        RELREQ(YES)
        DISCREQ(YES)
        USERAREALEN(255)
        IOAREALEN(1024,4096)
*****
*  TERMINAL DEFINITION FOR X-DOMAIN  R E M O T E  ATTACHED TERMINALS  *
*                                OF TYPE 'LUTYPE2'                        *
*****
DEFINE TERMINAL(--C101--)
    GROUP(--C102--)
    DEFSCREEN(24,80)
    ALTSCREEN(--C103--,80)
    BRACKET(YES)
    DEVICE(LUTYPE2)
    SENDSIZE(1536)
    RECEIVESIZE(1024)
    BUILDCHAIN(YES)
    AUDIBLEALARM(--C104--)
    COLOR(--C104--)
    EXTENDEDDES(--C104--)
    HIGHLIGHT(--C104--)
    PARTITIONS(--C104--)
    NETNAME(--C105--)
    RELREQ(YES)
    DISCREQ(YES)
    USERAREALEN(255)
    IOAREALEN(1024,4096)

/+
/* L E G E N D
    --C101-- :  4-DIGIT SEQUENTIAL NUMBER UNIQUE FOR EACH TERMINAL
                CONTROLLED BY AN OTHER DOMAIN, FROM WHERE OWN VSE/ESA-
                CAN BE LOGGED ON.
                EXAMPLE: X001,X002,X003,X004,X005...XNNN
    --C103-- :  GROUP IN WHICH THE TERMINAL IS DEFINED
    --C103-- :  ALTERNATE SCREEN SIZE. ENTER ONE OF THE FOLLOWING
                NUMBERS DEPENDING ON HOW MANY LINES THE TERMINAL CAN
                DISPLAY: 24, 32, OR 43
    --C104-- :  ENTER THE FEATURES THE TERMINAL HAS. ADDITIONAL
                DEFINITIONS MAY BE ADDED.
                FOR EXAMPLE:
                    KATAKANA(YES)
                    LIGHTPEN(YES)
                    PRINTADAPTER(YES)
    --C105-- :  8 CHARACTER NETNAME OF THAT TERMINAL

```

Figure 76 (Part 3 of 3). Terminal Control Entries for Cross-Domain Logon

Filling out the Network Skeleton (SKDTRNET)

CICS2 - ISC Terminal Control Entries

Intersystem Communication (ISC) allows one CICS Transaction Server to communicate with a CICS Transaction Server in another system.

You make an ISC entry **for the other system**. Thus for the example under consideration, you make in the subarea 3 definition an entry **for subarea 11**.

Because the CICS Transaction Server does not use a TCT, the ISC Terminal Control entries (shown in Figure 77 on page 161) must be migrated to a Resource Definition Online (RDO) format used by the CSD file. You must use the CICS utility DFHCSDUP to do so (please refer to the IBM manual *CICS TS Operations and Utilities Guide* SC33-1654 for details).

Note: The skeleton SKDTRNET will be changed for the General Availability of VSE/ESA 2.4, to avoid the use of DFHCSDUP.

The recommended alternative to building Terminal Control entries is that you use the CICS Transaction Server *Resource Definition Online* (RDO). In this case, CICS Transaction Server builds its own temporary tables. For further information refer to the IBM manual *CICS Resource Definition Guide* SC33-0708 .

In addition, other CICS Transaction Server definitions must be made. For these, consult the CICS Transaction Server publications, in particular the *CICS Intercommunication Guide* SC33-0701 .

```

      ----CICS2----- ISC TERMINAL ENTRIES */
CATALOG DTRTCT1I.Z REPLACE=YES
*****
*   I S C   SYSTEM   ENTRIES IN                               *
*               DEFINE LINKS TO OTHER SYSTEMS                 *
*****
DEFINE SESSION(--C201--)
      GROUP(--C202--)
      CONNECTION(--C203--)
      NETNAME(--C204--)
      PROTOCOL(APPC)
      MAXIMUM(--C205--)
      MODEMNAME(--C206--)
DEFINE CONNECTION(--C203--)
      ACCESSMETHOD(VTAM)
/+
CATALOG DTRTCT2I.A REPLACE=YES
*****
*   I S C   SYSTEM   ENTRIES IN                               *
*               DEFINE LINKS TO OTHER SYSTEMS                 *
*****
DEFINE SESSION(--C201--)
      GROUP(--C202--)
      CONNECTION(--C203--)
      NETNAME(--C204--)
      PROTOCOL(APPC)
      MAXIMUM(--C205--)
      MODEMNAME(--C206--)
DEFINE CONNECTION(--C203--)
      ACCESSMETHOD(VTAM)
/+
CATALOG DTRTCT3I.A REPLACE=YES
*****
*   I S C   SYSTEM   ENTRIES IN                               *
*               DEFINE LINKS TO OTHER SYSTEMS                 *
*****
DEFINE SESSION(--C201--)
      GROUP(--C202--)
      CONNECTION(--C203--)
      NETNAME(--C204--)
      PROTOCOL(APPC)
      MAXIMUM(--C205--)
      MODEMNAME(--C206--)
DEFINE CONNECTION(--C203--)
      ACCESSMETHOD(VTAM)
/+

```

Figure 77 (Part 1 of 2). ISC Terminal Control entries

Filling out the Network Skeleton (SKDTRNET)

```
/* L E G E N D                                     -
--C201-- : 1- TO 4-CHARACTER NAME TO IDENTIFY THE   -
           INTERCOMMUNICATION LINK.                 -
--C202-- : GROUP INTO WHICH THE DEFINITION IS DONE   -
--C203-- : 1- TO 8-CHARACTER NAME THAT IDENTIFIES THE -
           CONNECTION TO ACF/VTAM                   -
--C204-- : 1- TO 8-CHARACTER NETWORK NAME THAT IDENTIFIES THE -
           REMOTE CICS TO ACF/VTAM.                 -
--C205-- : MAXIMUM NUMBER OF SESSIONS (DEFAULT = 1)   -
           IF VSE/OFFICE (E.G. PS/CICS, DISOSS, ...) IS TO -
           BE USED, THIS NUMBER MUST BE AT LEAST 3    -
--C206-- : 1- TO 8-CHARACTER LOGMODE NAME THAT IDENTIFIES THE -
           GROUP OF RELATED SESSIONS.               -
N O T E : ALL ENTRIES ARE FOR THE REMOTE CICS SYSTEM   -
                                                    */
/*-----
```

Figure 77 (Part 2 of 2). ISC Terminal Control entries

Here is an example of how the CICS utility DFHCSDUP can be used for updating the CICS System Definition file.

```
* =====
*
* CICS CSD FILE UPDATE
*
*      If CICS TERMINALS WERE DEFINED IN SOURCE MEMBERS DTRTCTXX.Z
*      FOLLOWING JOB WILL UPDATE THE CSD FILE ACCORDINGLY:
*
* =====
// EXEC DFHCSDUP,SIZE=600K
* $$ SLI Z.DTRTCT1X
* $$ SLI Z.DTRTCT2X
* $$ SLI Z.DTRTCT3X
* $$ SLI Z.DTRTCT1I
* $$ SLI Z.DTRTCT2I
* $$ SLI Z.DTRTCT3I
/*
```

Figure 78. Example DFHCSDUP Update Job

PNET1 - VSE/POWER Network Definition Table

This section contains PNODE macros which define *nodes* to VSE/POWER.

Note that in the example there is a BSC connection between subarea 3 and VM. Although not linked by an SNA connection, they are nevertheless *nodes* in the VSE/POWER context. The same is true for the *indirect link* between subarea 3 and the VM-attached printer BOE85117.

Therefore, the example below shows **four** PNODE macros. Because the printer BOE85117 can be accessed from subarea 11 as well, the network skeleton for subarea 11 will also have a PNODE macro for this printer.

Filling out the Network Skeleton (SKDTRNET)

The first node is the one for which you are defining the network skeleton (LOCAL=YES). The name that you specify in the leftmost field (IESPNDT in the example) becomes the phase name of the network definition table.

APPLID must be identical to the cross-domain resource name that you chose in the VTAM10 section.

AUTH defines the level of remote operator control at the other PNET node(s).

- NET - the operator at the interconnected node can manipulate all entries in this node's VSE/POWER queues using PNET networking commands.
- JOB - in addition to general operator console display functions, the interconnected node operator can manipulate the following contents of the VSE/POWER queues at this node:
 - Any job which originated from the interconnected node.
 - Any output produced by a job that originated at the interconnected node.
 - Any output which is destined for the interconnected node.
- NOJOB - the operator at the interconnected node may issue only some general operator console display commands. No manipulation of this node's VSE/POWER queues is allowed.

```
/*----- -
POWER DEFINITIONS -
-----PNET1----- POWER NETWORK DEFINITION TABLE */
/*
// LIBDEF PHASE,CATALOG=PRD2.CONFIG
// OPTION CATAL
// EXEC ASMA90,SIZE=(ASMA90,64K),PARM='EXIT(LIBEXIT(EDECKXIT)),SIZE(MAXC
-200K,ABOVE)'
*
* DEFINITION FOR THIS NODE
*
        PRINT NOGEN
IESPNDT PNODE NODE=BOEVSES3, *
        APPLID=VSE3PNET, *
        LOCAL=YES
*
* DEFINITIONS FOR INTERCONNECTED SYSTEMS
*
* POSSIBILITY 1: DIRECT LINK TO INTERCONNECTED SYSTEM
*        WITHOUT ALTERNATE ROUTE
        PNODE NODE=BOEVSESB, *
        APPLID=VSEBPNET,AUTH=NET
        PNODE NODE=BOEVM3,AUTH=NET
```

Figure 79 (Part 1 of 2). VSE/POWER Network Definition Table

Filling out the Network Skeleton (SKDTRNET)

```
*
* POSSIBILITY 2: DIRECT LINK TO INTERCONNECTED SYSTEM
*           WITH ALTERNATE ROUTE
*           PNODE NODE=--P102--,
*           APPLID=--P104--,AUTH=--P109--,
*           ROUTE2=--P105--
*
* POSSIBILITY 3: INDIRECT LINK TO INTERCONNECTED SYSTEM
*           VIA ADJACENT NODE WITHOUT ALTERNATE ROUTE
*           PNODE NODE=BOE85117,AUTH=NOJOB,ROUTE1=BOEVM3
*
* POSSIBILITY 4: INDIRECT LINK TO INTERCONNECTED SYSTEM
*           VIA ADJACENT NODE WITH ALTERNATE ROUTE
*           PNODE NODE=--P106--,AUTH=--P109--,
*           ROUTE1=--P107--,
*           ROUTE2=--P108--
*
*           END
/*
// EXEC LNKEDT
*
* L E G E N D
* --P101-- : PHASE NAME OF THE NETWORK DEFINITION TABLE GENERATED
* IESPNDT BY THE ASSEMBLY OF THE PNODE MACROS.
* --P102-- : PNET NODE NAME OF YOUR OR AN INTERCONNECTED SYSTEM
* BOEVSES3 , BOEVSESB , BOEVM3
* --P103-- : NAME BY WHICH VTAM KNOWS THIS NODE'S NETWORK SYSTEM
* VSE3PNET
* --P104-- : PNET APPLIC.-ID OF INTERCONN. SYSTEM VIA DIRECT LINK
* VSEBPNET
* --P105-- : PNET ALTERNATE NODE NAME TO DESTINATION NODE --P102--
* --P106-- : PNET NODE NAME OF INTERCONNECTED SYSTEM VIA INDIRECT
* BOE85117 LINK
* --P107-- : PNET ADJACENT NODE NAME TO DESTINATION NODE --P106--
* BOEVM3
* --P108-- : PNET ALTERNATE NODE NAME TO DESTINATION NODE --P106--
* --P109-- : AUTHORIZATION LEVEL OF INTERCONNECTED SYSTEM FOR POWER
*           OPERATION ON OWN NODE. POSSIBLE ENTRIES ARE: NET
*           JOB
*           NOJOB
*
```

Figure 79 (Part 2 of 2). VSE/POWER Network Definition Table

SP1 - Information for the Other Administrator

This section has instructions for the administrator who will install the network definition tape. The administrator is either

- Yourself - if you are filling out the network skeleton for your own domain, or
- Another administrator - if you are creating, **at your domain**, the network definition tape for another domain.

Filling out the Network Skeleton (SKDTRNET)

After installing the network definition tape, the administrator can access the information by displaying member DTR\$NET in library 59. This member has information on:

- VTAM startup options
- VTAM application names
- VSE/POWER generation parameters
- VSE/POWER startup parameters.

Member DTR\$NET for the example case is shown in Figure 80. You don't have to input anything in this section.

```
* ----SP1-----INFORMATION FOR SYSTEM ADMINISTRATOR---
PURGE LIBRARY(59) MEMBER(DTR$NET)
ADD MEMBER(59,DTR$NET,AAAA)
*
YOU NEED THE FOLLOWING INFORMATION FOR YOUR RESOURCE DEFINITION
DIALOG 'MAINTAIN VTAM START OPTIONS':
YOUR HOSTSA IS      3
*
YOU NEED THE FOLLOWING INFORMATION FOR YOUR RESOURCE DEFINITION
DIALOG 'MAINTAIN VTAM APPLICATION NAMES':
THE APPLID OF YOUR CICS SUBSYSTEM(S) IS  VSE3CICS,--S103,...
THE APPLID OF YOUR LOCAL PNET NODE IS    VSE3PNET
*
YOU NEED THE FOLLOWING INFORMATION FOR POWER GENERATION.
SPECIFY FOR THE PNET OPERAND OF THE POWER MACRO THE
NAME OF YOUR NETWORK DEFINITION TABLE:  IESPNDT
*
YOU NEED THE FOLLOWING INFORMATION TO START PNET:
NAMES OF ADJACENT PNET NODES ARE BOEVSESB,BOEVM3
*
END OF MEMBER
*
* L E G E N D
* --S101-- :   SNA SUBAREA NUMBER OF THIS NODE
* 3
* --S102-- :   NAME BY WHICH VTAM KNOWS THIS NODE'S CICS SUBSYSTEM(S)
* VSE3CICS
* --S103-- :   NAME BY WHICH VTAM KNOWS THIS NODE'S CICS SUBSYSTEM(S)
* --S104-- :   NAME BY WHICH VTAM KNOWS THIS NODE'S PNET SYSTEM AS
*              DEFINED IN --P103--
* VSE3PNET
* --S105-- :   NAME OF NETWORK DEFINITION TABLE AS DEFINED IN --P101--
* IESPNDT
* --S106-- :   PNET NODE NAMES OF INTERCONNECTED SYSTEMS VIA DIRECT
*              LINKS AS DEFINED IN --P102-- WITHOUT 'LOCAL=YES'
* BOEVSESB , BOEVM3
*
```

Figure 80. DTR\$NET - Administrator Instructions

Filling out the Network Skeleton (SKDTRNET)

SP2 - List of PNET Nodes

This section contains brief one-line descriptors for each VSE/POWER PNET node. The information will be used in HELP panels for the Job/File Transfer function.

```
* ----SP2----- LIST OF PNET NODES
PURGE LIBRARY(2) MEMBER(PNT$NODE)
ADD MEMBER(2,PNT$NODE,AAAA)
*
NODE-NAME  OP-SYS  NODE DESCRIPTION
-----
*
BOEVSES3   LOCAL
BOEVSESB   VSPE VSE3  PLANT
BOEVM3     CMS VM-3   LAB
BOE85117   CMS 3203   PRINTER LAB
*
END OF MEMBER
*
* L E G E N D
* --S201-- : PNET NODE NAME OF THIS NODE AS DEFINED IN --P102--
*           WITH LOCAL=YES
* --S202-- : PNET NODE NAME OF INTERCONNECTED SYSTEM BEGINNING IN
*           COLUMN 1
* --S203-- : ENTER ONE OF THE FOLLOWING OPERATING SYSTEMS:
*           VSPE - VSE NODE WITH VSE/ESA 1.3
*           MVS  - OS/390 NODE WITH OS/390 JES2
*           MVR  - OS/390 NODE WITH OS/390 JES2 AND RACF
*           MVS3 - OS/390 NODE WITH OS/390 JES3
*           MVR3 - OS/390 NODE WITH OS/390 JES3 AND RACF
*           CMS  - VM  NODE WITH CMS (USER ID MUST BE SPECIFIED)
*
*           BACKLEVEL SYSTEMS:
*           VSP  - VSE NODE WITH VSE/SP 2.1 TO VSE/ESA 1.2
*           VSE  - VSE NODE WITH VSE PRIOR TO VSE/SP 2.1
*           BACKLEVEL SYSTEMS WITH SECURITY:
*           VSPS - VSE NODE WITH VSE/SP 2.1 TO VSE/ESA 1.2
*           VSES - VSE NODE WITH VSE PRIOR TO VSE/SP 2.1
*
*           NOTE: A VSE GUEST MACHINE UNDER VM MUST NOT BE
*           SPECIFIED AS VM NODE (USER ID), BUT AS A
*           VSE NODE DEFINED IN THE POWER/PNET NODE
*           DEFINITION TABLE.
*
* --S204-- : ONE LINE TEXT UP TO 50 BYTES DESCRIBING THE NODE FOR
*           THE VSE/ESA USER E.G. LOCATION ETC. AS HELP PANEL TO
*           JOB/FILE TRANSFER FUNCTION.
*
```

Figure 81. List of PNET Nodes

Please note that there is no special descriptor for a VSE guest under VM. In this context, a VSE system under VM is treated like a *native* VSE system. The connection from your VSE/ESA system to an interconnected VSE system must be PNET-to-PNET, or PNET-to-JES2/3 in the case of an OS/390 system. VSE/POWER's PNET function takes the objects to be transferred into or out of the VSE guest with VM serving as an intermediate node.

As a result, you do not need to concern yourself with the VM user ID of the VSE guest. The only exception is the transfer of a VSE/ICCF library member to a CMS user.

SP3 - Node-Related JCL (Operating System Independent)

The information used here:

- Establishes the execution characteristics of the **transfer/retrieve jobs** between this and interconnected nodes.
- Sets default values used by the dialogs when creating the transfer/retrieve job.
- Reconciles job control differences between a VSE system and an OS/390 system.
- Supplements job control statements generated automatically by the dialog.

Information in this part is operating system independent. It does, however, point to the operating system **dependent** job control specified in SP4 which is the following section of SKDTRNET.

You can *transfer* (send) VSE/VSAM files or VSE/ICCF library members to other systems or receive VSE/VSAM files or VSE/ICCF library members from other systems. Both KSDS and ESDS files can be sent or received. A maximum record length of 32K is supported.

When using the dialog for this type of data transfer/retrieval (see “Transferring/Retrieving Files to/from Other Systems” on page 212), you may or may not have to provide job control information to supplement the job control created automatically by the dialog. This job control is coded and cataloged into PRD2.CONFIG as a member of type U and referred to under a unique name, the so-called *JCL-ID*. How you code and catalog the job control is explained in “SP4 - Node-Related JCL (Operating System Dependent)” on page 172.

Such additional job control, or JCL-IDs, is not required for data transfer between VSE systems (such as VSE/ESA-to-VSE/ESA or VSE/ESA-to-VSE/SP). If you do not provide your own JCL, VSE/ESA generates a JOB statement as well as JCL for sending or retrieving the VSE/VSAM file.

A JCL-ID is necessary, however, for

- OS/390 nodes.

At least a JOB statement is required. For VSE/VSAM files, a STEPCAT statement may be required.

- Retrieving a VSE/ICCF member from a VSE system without VSE/ESA or VSE/SP, if there is no permanent assignment for the VSE/ICCF library file DTSFILE (SYS010). In this case, you would have to provide an ASSGN statement.

As a result of the dialog, VSE/ESA generates job control including the job control that you had created. The VSE/VSAM file or the VSE/ICCF member is inserted at the appropriate place.

Besides **pointing to JCL**, the JCL-ID may contain JCL parameters of its own, such as file identifier, catalog name, job class. Providing a set of JCL parameters under

Filling out the Network Skeleton (SKDTRNET)

one single ID relieves the terminal user from having to enter those parameters one by one into the *File Transfer* or *File Retrieve* panel.

The two sections of the network skeleton - SP3 and SP4 - facilitate the setup of JCL-IDs and of the JCL itself:

- SP3 defines a table of JCL-IDs and JCL parameters (defaults) and prepares for cataloging the JCL-IDs into VSE/ICCF library 2 under the member name PNT\$JCLT.
- SP4 contains the JCL and prepares for cataloging the JCL into library PRD2.CONFIG under member name(s) 'jcl-id.U'.

Note that it is feasible to have only section SP3 without a corresponding SP4 section. This could be practical, for example, in the case of data exchange between two VSE/ESA systems when you want to set up the parameters for the file transfer in advance and do not need special JCL.

The two sections contain numerous instructions on how to fill in the parameters.

The following two figures show (1) the skeleton in its raw form, (2) some examples of JCL-IDs and parameters.

```
* ----SP3----- NODE RELATED JCL FOR JOB IDENTIFICATION
PURGE LIBRARY(2) MEMBER(PNT$JCLT)
ADD MEMBER(2,PNT$JCLT,AAAA)
*
NODE-ID=--S301--
*
TRANSFER-JCL-ID=--S302--
FROM-FILE=--S303--
CAT=--S304--
TO-FILE=--S305--
DISP=--S306--
CAT=--S307--
JOB-CLASS=--S308--
JOB-DISP=--S309--
*
*
RETRIEVE-JCL-ID=--S310--
FROM-FILE=--S303--
CAT=--S311--
TO-FILE=--S305--
CAT=--S312--
*
END OF MEMBER
```

Figure 82 (Part 1 of 2). PNT\$JCLT - Node-Related JCL

```

*
* L E G E N D
* --S301-- : PNET NODE NAME OF INTERCONNECTED SYSTEM
* --S302-- : JCL-ID WHICH CAN BE REFERENCED IN FILE TRANSFER
*           FUNCTION UNDER RELATED JCL-ID.
* --S303-- : SOURCE VSAM FILE ID (UP TO 44 CHARS) TO BE
*           TRANSFERRED TO NODE --S301-- OR RETRIEVED FROM
*           NODE --S301--.
*           THIS INFORMATION IS OPTIONAL AND IS USED IF THE JCL
*           IN --S302-- OR --S310-- HAS FIXED RELATION TO THE
*           FILE NAME --S303--.
* --S304-- : VSAM USER CATALOG NAME OF THE FILE TO BE TRANSFERRED TO
*           NODE --S301--. THIS STATEMENT IS OPTIONAL.
* --S305-- : VSAM FILE ID (UP TO 44 CHARS) TO BE USED FOR LOADING
*           THE FILE AT DESTINATION NODE.
*           THIS INFORMATION IS OPTIONAL. IF OMITTED, SOURCE FILE
*           ID IS USED.
* --S306-- : FILE DISPOSITION WHICH WILL BE APPENDED TO DLBL JCL
*           STATEMENT IN VSE, OR DD STATEMENT IN OS/390.
*           THIS INFORMATION IS OPTIONAL AND MAY BE USED IN VSE
*           FOR RESETTING REUSABLE VSAM FILES.
* --S307-- : VSAM USER CATALOG NAME OF FILE AT VSE DESTINATION NODE.
* --S308-- : VSE JOB CLASS TO BE USED FOR RUNNING THE FILE TRANSFER
*           JOB AT DESTINATION NODE.
* --S309-- : VSE JOB DISPOSITION TO BE USED FOR RUNNING THE FILE
*           TRANSFER JOB AT DESTINATION NODE.
* --S310-- : JCL-ID WHICH CAN BE REFERENCED IN FILE RETRIEVE
*           FUNCTION UNDER RELATED JCL-ID.
* --S311-- : VSAM USER CATALOG NAME OF THE FILE TO BE RETRIEVED FROM
*           NODE --S301--. THIS STATEMENT IS OPTIONAL.
* --S312-- : VSAM USER CATALOG NAME OF THE FILE TO BE LOADED AT
*           DESTINATION NODE. THIS STATEMENT IS OPTIONAL.

```

Figure 82 (Part 2 of 2). PNT\$JCLT - Node-Related JCL

Figure 83 on page 170 shows an example of member PNT\$JCLT.

Filling out the Network Skeleton (SKDTRNET)

```
* JOB-DISP=L -----> THIS PARAMETER OVERWRITES VSE DEFAULTS
* JOB-CLASS=C          DISP=D AND CLASS=A FOR ALL NODES.
*
*   NODE-ID=VSEHOST
*     JOB-DISP=D -----> THIS PARAMETER IS VALID ONLY FOR
*     JOB-CLASS=B          THIS NODE (VSEHOST).
*     TRANSFER-JCL-ID=UPDFILE
*       JOB-CLASS=F -----> THIS PARM IS VALID ONLY FOR THIS JOB
*       FROM-FILE=UPDATE.FILE
*       TO-FILE=UPDATE.FILE.VSESP1
*       CAT=UCAT005
*       DISP=(NEW,SHR)
*     RETRIEVE-JCL-ID=PRICES
*       JOB-DISP=H -----> THIS PARM IS VALID ONLY FOR THIS JOB
*       FROM-FILE='BRANCH.OFFICE.PRICE.UPDATES'
*       CAT=UCAT005
*       TO-FILE='PRICE.UPDATE.FILE'
*
*   NODE-ID=VSESP1
*     TRANSFER-JCL-ID=UPDFILE
*     FROM-FILE=TEXT.FILE
*
*   NODE-ID=OS390HOST
*     TRANSFER-JCL-ID=OS390JOB
*   NODE-ID=BOEVSESB
*     TRANSFER-JCL-ID=TOVSEB
*     FROM-FILE=VSE3.MAXI
*     CAT=VSESPUC
*     TO-FILE=VSEB.MAXI
```

Figure 83. Example of Member PNT\$JCLT

The example above defines JCL-IDs for four network nodes, VSEHOST, VSESP1, OS390HOST, BOEVSESB. These are PNET node names and, as such, must be defined in member PNT\$NODE (see the preceding section, SP2).

- UPDFILE is a JCL-ID that can be used for *sending* data to the PNET node VSEHOST. This is a *TRANSFER-JCL-ID*. Associated with UPDFILE are two file names, UPDATE.FILE and UPDATE.FILE.VSESP1. When someone enters (in the *File Transfer* panel) UPDFILE as JCL-ID, the dialog knows that the data in UPDATE.FILE is to be sent to UPDATE.FILE.VSESP1.

UPDFILE for VSEHOST has a DISP parameter following the TO-FILE name, UPDATE.FILE.VSESP1. This causes UPDATE.FILE.VSESP1 to be reset when it is opened for output.

DISP (NEW,SHR) is only for reusable VSE/VSAM files - files that were defined with the REUSE option. The DISP parameter is added to the DLBL or DD statement for the TO-FILE.

- PRICES is a JCL-ID that can be used for *retrieving* data from node VSEHOST. Associated with PRICES are two file names, BRANCH.OFFICE.PRICE.UPDATES and PRICE.UPDATE.FILE. When someone enters (in the *File Transfer* panel) PRICES as JCL-ID, the dialog knows that the data in BRANCH.OFFICE.PRICE.UPDATES is to be retrieved from system VSEHOST and stored in the (local) file PRICE.UPDATE.FILE.

Filling out the Network Skeleton (SKDTRNET)

- UPDFILE as JCL-ID appears again, this time however belonging to PNET node VSESP1. This JCL-ID is for sending files to the VSE/SP system VSESP1. Because the TO-FILE parameter is omitted, the FROM-FILE name TEXT.FILE is used as the name of the target file.
- OS390JOB is a JCL-ID that can be used for sending data to the OS/390 system named OS390HOST. No specific files to be sent or retrieved are defined in it. Most likely, the JCL will consist of a JOB statement.
- The last JCL-ID (for node BOEVSESB) can be used for the example configuration under consideration in this chapter. It would save the terminal user from having to type in the various JCL parameters in the *File Transfer* panel.

Note that for OS/390 systems, the default disposition is DISP=SHR. For VSE/ESA, no DISP parameter is used unless you code it in PNT\$JCLT.

Note also that **JOB-DISP** and **JOB-CLASS** can be placed so as to serve as defaults for the entire set of JCL-IDs.

The transfer/retrieve dialogs place job control which they generate at the beginning of the job stream to be sent to the other node. For example, if you send a file to the node OS390HOST (see above) and used JCL-ID OS390JOB, VSE/ESA would search library PRD2.CONFIG for a member named OS390JOB.U. The content of OS390JOB.U is put ahead of the file data. This might only be an OS/390 JOB statement such as:

```
//VSEJOB JOB (FROOS390E1),'XFER TO OS390HOST',MSGLEVEL=1
```

Besides the JOB statement, the JCL member may have one or more job steps (see Figure 84).

```
//VSESMF JOB (FROOS390E),'FILEXFER TO OS390HOST',MSGLEVEL=1
//DEFCL EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=A
//SYSIN DD *
    DELETE VSE.MINIFILE CLUSTER PURGE
    DEFINE CLUSTER -
        ( NAME (VSE.MINIFILE) -
          RECORDS (40 20) -
          TO (99366) -
          INDEXED -
          KEYS (8 0) -
          RECORDSIZE (1000 6000) -
          VOLUMES (PN01DG)) -
        DATA -
    ( NAME (VSE.MINIFILE.DATA) CISZ(6144)) -
    INDEX -
    ( NAME (VSE.MINIFILE.INDEX) CISZ(512)) -
```

Figure 84. Sample Source Book for JCL-ID

A member associated with a JCL-ID must:

- Start with a JOB statement that is valid for the receiving system.
- Contain no VSE/POWER job entry control language.
- Substitute @* for /* (please refer also to the L E G E N D in

Filling out the Network Skeleton (SKDTRNET)

- Have no /&; section SP3 of the network skeleton)

Note: If after installing the network definition tape you make changes to JCL-IDs and later receive a new network definition tape, your changes will be overridden.

Please observe the following recommendations concerning

User ID and Password Variables for OS/390 Systems with RACF:

A user ID and password are required to exchange files with an OS/390 system that has RACF*. For OS/390 systems that have RACF installed, VSE/ESA supports variables for OS/390 user IDs and passwords in these type U members. To take advantage of this support:

1. Make sure that the library member **PNT\$NODE** shows **MVR** for the OS/390 system that you want to exchange files with.

The skeleton for this table is shown above in "SP2 - List of PNET Nodes" on page 166. MVR means that an OS/390 system has OS/390 JES2 and RACF installed.

2. Make sure that the members with file type U in PRD2.CONFIG have the following variables in the OS/390 JOB statement:

%USERID instead of a hard-coded user ID

%PASSWORD instead of a hard-coded password

These variables are replaced when VSE/ESA creates the job to transfer/receive a file.

3. Use the dialogs of the Interactive Interface to exchange files with the OS/390 system. In the dialogs, enter the user ID and password of the OS/390 user who will receive/send a file.

Notes:

- a. If the JOB statement in the library member does not use variables, then user IDs and passwords that you enter in the dialogs are ignored.
- b. An example of an OS/390 JOB statement with variables is:

```
//OS390JOB JOB (account_info),'infotext',MSGLEVEL=(1,1),  
//          CLASS=A,MSGCLASS=Q,USER=%USERID,PASSWORD=%PASSWORD
```

SP4 - Node-Related JCL (Operating System Dependent)

This section contains operating system **dependent** JCL.

Be careful to specify book names that match the TRANSFER-JCL-ID and RETRIEVE-JCL-ID names specified in section SP3 above.

Do not place VSE/POWER JECL statements in this section. Empty books are not allowed.

Examples were shown in the preceding section (SP3). Because for a file exchange between two VSE/ESA systems, the dialog typically does not need additional JCL from you, section SP4 is invalidated for the example multiple domain (VSESP3 to VSESPB). See Figure 85 on page 173.

```
// EXEC LIBR,PARM='MSHP'
/* ---SP4----- NODE RELATED JCL FOR JOB IDENTIFICATION */
ACCESS SUBLIB=PRD2.CONFIG
* CATALOG --S302--.U REPLACE=YES
* --S401--
* /+
* CATALOG --S310--.U REPLACE=YES
* --S402--
* /+
/* L E G E N D
--S401-- : SET OF SYSTEM DEPENDENT JCL, E.G. JOB STATEMENT ETC., -
          WHICH WILL BE AUTOMATICALLY ADDED AT THE FRONT OF THE -
          FILE TRANSFER STEP TO BE RUN ON REMOTE NODE. -
          '/'* CONTROL STATEMENTS MUST BE REPLACED BY '@*'. -
--S402-- : SET OF SYSTEM DEPENDENT JCL, E.G. JOB STATEMENT ETC., -
          WHICH WILL BE AUTOMATICALLY ADDED AT THE FRONT OF THE -
          FILE RETRIEVE STEP TO BE RUN ON REMOTE NODE. -
          '/'* CONTROL STATEMENTS MUST BE REPLACED BY '* $$/*'. -
NOTE FOR OS/390 NODES WITH RACF:
THE FOLLOWING DESCRIBES HOW TO AVOID THE EXPLICIT
SPECIFICATION OF OS/390 USER ID AND PASSWORD.
- IN SECTION SP2 (LIST OF PNET NODES) SPECIFY FOR THE
  PARAMETER OP-SYS 'MVR' FOR THE CORRESPONDING NODE.
- THE FIRST STATEMENT MUST BE A JOB STATEMENT.
- IN THE OS/390 JOB STATEMENT THE USER ID AND PASSWORD
  MUST BE SPECIFIED AS VARIABLES '%USERID' AND
  '%PASSWORD'. ON JOB INITIATION THE VARIABLES ARE
  SUBSTITUTED BY THE INDIVIDUAL VALUES ENTERED IN THE
  DIALOG.
E X A M P L E :
//JOBNAME JOB ACCOUNTING-INFO,USER=%USERID,PASSWORD=%PASSWORD
-----END OF NETWORK DEFINITION SKELETON */
```

Figure 85. SP4 - Node-Related JCL

This completes the network skeleton definition for cross-domain networks.

Example NCP-to-NCP

Example NCP-to-NCP Configuration

This section shows an example of a multiple-domain definition based on an NCP-to-NCP connection.

The VSE/ESA network definition skeleton SKDTRNET, which was presented in the preceding section, is specifically geared toward an ICA-to-ICA or toward a channel-to-channel (under VM) connection. With some restrictions, the skeleton also works for an NCP-to-NCP connection.

How to fill out the skeleton was shown in the preceding section. This section only gives the necessary VTAM definitions, outside of the context of the skeleton.

The Example Configuration

This is an overly simplified example, intended to stress the unique aspects of an NCP-to-NCP connection. The configuration is depicted in the following figure.

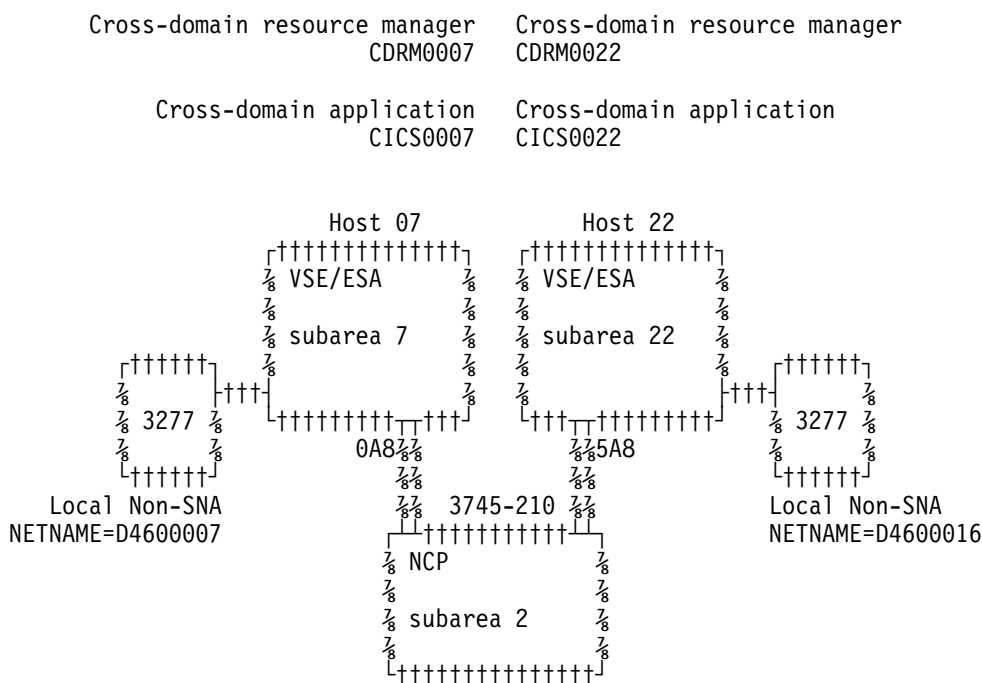


Figure 86. Example NCP-to-NCP Connection

One or more terminal sessions can be established from the 3277 at Host 07 to CICS0022, or from the 3277 at Host 22 to CICS0007. Terminal Control entries for the CICS Transaction Server are not necessary because autoinstall is used for both CICSs. Note that the terminals' netnames are built according to the 4-digit subarea naming convention (which is described in section "4-Digit Subarea Naming Convention" on page 224).

Below, you find the VTAM definitions for Host 07. Definitions for Host 22 are similar.

VTAM and NCP Definitions

VTAM Startup Options

The startup options, in this example case, are cataloged in ATCSTR07.B, in other words, in a member separate from the default startup options list ATCSTR00.B. VTAM is directed to that special list either via the operator entry LIST=07, or via the entry LIST=07 in ATCSTR00.B.

Figure 87 shows the list for Host 07.

CATALOG ATCSTR07.B	REPLACE=YES	
ASYDE=TERM,		X
CDRSCTI=50,		X
COLD,		X
MSGMOD=NO,		X
HOSTSA=7,		X
HOSTPU=NODE0007,		X
SSCPNAME=SSCP0007,		X
NETID=NET3246,	MUST BE THE SAME FOR ALL CDRM'S FOR THIS DOMAIN	X
MAXSUBA=255,		X
PPOLOG=NO,		X
PROMPT,		X
SUPP=NOSUP,		X
SONLIM=(60,30),		X
SSCPDYN=YES,		X
SSCPID=1,		X
SSCPORD=PRIORITY,		X
TRACE,TYPE=VTAM,SIZE=200,OPT=ALL,		X
NOTNSTAT,		X
IOINT=40,		X
SGALIMIT=0,		X
BSBUF=(28,,,1),		X
CRPLBUF=(60,,,1),		X
IOBUF=(70,288,,,11),		X
LFBUF=(70,,,,30),		X
LPBUF=(50,,,,6),		X
SFBUF=(50,,,,20),		X
SPBUF=(210,,,,32),		X
XDBUF=(6,,,1),		X
CONFIG=07,		X
XNETALS=YES		
/+		

Figure 87. Startup Options List for Host 07

VTAM Configuration List

This is the list of major nodes that VTAM needs to activate for the network to operate. They are:

1. Path table
2. NCP and cross-domain link
3. Local non-SNA terminal
4. Application

Example NCP-to-NCP

5. Cross-domain resource manager
6. Cross-domain resources

Definitions for these major nodes will be presented one by one in the following sections.

The configuration list, in this example case, is cataloged in ATCCON07.B, in other words, in a member separate from the default configuration list ATCCON00.B. VTAM is directed to that special list via the entry CONFIG=07 in ATCSTR07.B (see above).

Figure 88 shows the configuration list for Host 07. Note that

- The first entry **must be** the path table.
- The name of the NCP major node (NCPN02C) matches the value of the NEWNAME parameter of the NCP BUILD macro.

CATALOG	ATCCON07.B	REPLACE=YES	
	PATH0007,		*
	NCPN02C,		*
	VTMNSNA,		*
	APPL0007,		*
	CDMS0007,		*
	CDRS0007,		
/+			

Figure 88. VTAM Configuration List for Host 07

Cross-Domain Path Table

This table designates a transmission group (TG) for each destination subarea.

Figure 89 shows the path table for Host 07.

CATALOG	PATH0007.B	REPLACE=YES	
PATH0007	PATH DESTSA=2,		*
	ER0=(2,1),VR0=0		
	PATH DESTSA=22,		*
	ER0=(2,1),VR0=0		
/+			

Figure 89. Path Table for Host 07

NCP Major Node

This defines the cross-domain link from Host 07 to Host 22.

Figure 90 on page 177 shows the NCP major node definition for Host 07. Only those parts are shown which have entries relevant to the cross-domain definition.

```

*****
*   PCCU FOR SA 7  N-SYSTEM                               *
*****
PCCU07  PCCU  DUMPDS=SYS009,      DDNAME FOR NCPDUMP DATA SET      P
              CDUMPDS=SYS009,      DDNAME FOR CSP DUMP DATA SET      P
              MDUMPDS=SYS009,      DDNAME FOR MOSS DUMP DATA SET      P
              AUTODMP=NO,           P
              OWNER=SA07,           P
              MAXDATA=32800,        P
              NCPLUB=SYS007,        P
              AUTOIPL=NO,           DO NOT AUTOIPL AFTER CRASH      P
              AUTOSYN=NO,           NO AUTOSYNCH IF ALREADY LOADED    P
              INITEST=NO,           NO INITIAL DIAGNOSTIC TEST        P
              BACKUP=YES,           P
              CUADDR=0A8,           FOR 3745-N                        P
              VFYLM=YES,            OPER.INTERV.IF SUA NAME AND NEWNAME P
              VFYC=YES,            OPER.INTERV IF TIMESTAMP MISSMATCH P
              SUBAREA=7

```

Figure 90 (Part 1 of 3). NCP Major Node of Host 07

Example NCP-to-NCP

```

*****
*   PCCU FOR SA 22 N-SYSTEM                               *
*****
PCCU22  PCCU  DUMPDS=SYS009,      DDNAME FOR NCPDUMP DATA SET      P
              CDUMPDS=SYS009,      DDNAME FOR CSP DUMP DATA SET    P
              MDUMPDS=SYS009,      DDNAME FOR MOSS DUMP DATA SET    P
              AUTODMP=NO,          P
              MAXDATA=9134,        P
              NCPLUB=SYS012,       P
              AUTOIPL=NO,          DO NOT AUTOIPL AFTER CRASH      P
              AUTOSYN=NO,          NO AUTOSYNCH IF ALREADY LOADED   P
              CHANCON=CON,         NCP CAN REJ. CONTACT IF SA IS USED P
              INITEST=NO,          NO INITIAL DIAGNOSTIC TEST       P
              BACKUP=YES,          P
              CUADDR=5A8,          FOR 3745-N                       P
              VFYLM=YES,           OPER.INTERV.IF SUA NAME AND NEWNAME P
              VFYC=YES,           OPER.INTERV IF TIMESTAMP MISSMATCH P
              SUBAREA=22
*****
*   BUILD FOR SA 07 N-SYSTEM                               *
*****
BUILDN07 BUILD MAXSUBA=255, >>>063 MAX SUBAREA FOR THE NETWORK      B
              NETID=NET3246,       NETID FOR THIS NCP AND THIS VTAM  B
              ADDSESS=100,         B
              MAXSESS=50,          MAX SESSIONS FOR IND LU           B
              AUXADDR=10,          ADDITIONAL ADR. FOR IND LUS       B
              PRTGEN=NOGEN,        NO STATEMENT LIST OF ASM1         B
              SUBAREA=02,          NCP SUBAREA                        B
              USGTIER=5,           SCANNER RELATED FEATURE CODE      B
              MODEL=3745-210,      GEN RUNS ON 3745 CONTROLLER (N)    B
              TYPGEN=NCP,          CHANNEL OR LINK ATTACHED PEP GEN  B
              VERSION=V7R1,        NCP VERSION (REQUIRED FOR NDF)    B
              NEWNAME=NCPN02C,     NAME OF NCP LOAD MODULE           B
              TYP SYS=VSE,         NCP TO BE GENERATED FOR VSE       B
              OLT=NO,              ONLINE TERMINAL TEST              B
              SLOWDOWN=25,         BUFFER SLOWDOWN THRESHOLD (PERCENT) B
              TRACE=(YES,256),     MAXIMUM SIZE ADDRESS TRACE TABLE  B
              LTRACE=2,            LINES TRACED SIMULTANEOUSLY        B
              LINETRC=(YES,,200),  BSC LINE TRACE POSSIBILITY         B
              PNLTEST=YES,         B

```

Figure 90 (Part 2 of 3). NCP Major Node of Host 07

```

        BFRS=240,          NCPBUFF SIZE                      B
        TRANSFR=137,       68 X 288 + 47 = MAX DATA        B
        MAXSSCP=6,         NUMBER OF CONCURRENT SSCP'S       B
        NUMHSAS=6,         HOST SA IN CONCURRENT COMMUNICATION B
        VRPOOL=(50,50),    MAX VIRTUAL ROUTES                B
        BRANCH=100,        MINIMUM SIZE BRANCH TRACE TABLE  B
        CATRACE=(YES,255)   MAXIMUM SIZE CHANNEL TRACE TABLE
        SYSCNTRL OPTIONS=STORDSP
*****
*   HOST FOR SA 7 N-SYSTEM                                     *
*****
HOST07  HOST  MAXBFRU=32,    MINIMUM HOST BUFFER ALLOCATION    H
          UNITSZ=288,        SIZE OF DATA PORTION OF HOST BUFFER H
          SUBAREA=07,        VTAM HOST SUBAREA FOR VSE07       H
          BFRPAD=0,          VTAM BUFFER PAD REQUIREMENT (TSC)  H
          INBFRS=70,         NCP BUFS ALLOC FOR READ FROM HOST  H
          DELAY=0.2,         NCP DELAY BEFORE ATTN ISSUE       H
          TIMEOUT=420        7 MIN FROM ATTN TO ANS ENTRY
*****
*   HOST FOR SA 22 N-SYSTEM                                    *
*****
HOST22  HOST  MAXBFRU=32,    MINIMUM HOST BUFFER ALLOCATION    H
          UNITSZ=288,        SIZE OF DATA PORTION OF HOST BUFFER H
          SUBAREA=22,        VTAM HOST SUBAREA FOR VSE22       H
          BFRPAD=0,          VTAM BUFFER PAD REQUIREMENT (TSC)  H
          INBFRS=70,         NCP BUFS ALLOC FOR READ FROM HOST  H
          DELAY=0.2,         NCP DELAY BEFORE ATTN ISSUE       H
          TIMEOUT=420        7 MIN FROM ATTN TO ANS ENTRY
*****
*
*
* PATH DEFINITIONS FOR CONNECTIONS TO SUBAREA 7 and 22 *
*
*****
PATHSA07 PATH  DESTSA=(7),          X
              ER0=(7,1),VR0=0
PATHSA22 PATH  DESTSA=(22),         X
              ER0=(22,1),VR0=0
*****
. . .

        GENEND
        END
/ +

```

Figure 90 (Part 3 of 3). NCP Major Node of Host 07

Local Non-SNA Terminal

This definition does not contain any information that is special to the cross-domain configuration. It would look the same in a single-domain environment. It is shown here for completeness, and because it is referenced in the VTAM configuration list (see above).

Figure 91 on page 180 shows the start of the terminal definitions.

Example NCP-to-NCP

Note that this example disregards CICS Transaction Server definitions because the terminals are assumed to be defined via autoinstall.

```
CATALOG  VTMSNA.B      REPLACE=YES
VTMSNA   LBUILD
D4600007 LOCAL CUADDR=460,TERM=3277,
          USSTAB=VTMUSSTB,
          DLOGMOD=SP32703N,
          LOGAPPL=DBDCCICS,
          MODTAB=IESINCLM,
          MDLTAB=VTM$MDL,
          MDLENT=VSE32783,
          FEATUR2=(MODEL2)
          ...
/+
```

Figure 91. Local Non-SNA Terminal at Host 07

Applications

This part defines an application major node. Aside from the system-required application IESWAITT, in this example CICS is the only application under VTAM.

Figure 92 shows the application major node for host 07.

```
CATALOG APPL0007.B      REPLACE=YES
NETAPPL  VBUILD TYPE=APPL
CICS0007 APPL AUTH=(VPACE,PASS,ACQ),VPACING=4,EAS=64,PARSESS=YES
IESWAITT APPL AUTH=(NOACQ)
/+
```

Figure 92. Application Major Node for Host 07

Cross-Domain Resource Manager

This part defines the "cross-domain resource manager" major node. In each domain, the local and the other cross-domain resource manager must be defined.

Figure 93 shows the definition in Host 07.

```
CATALOG CDMS0007.B      REPLACE=YES
          VBUILD TYPE=CDRM
CDRM0007 CDRM ISTATUS=ACTIVE,VPACING=1,CDRDYN=YES,
          CDRSC=OPT,RECOVERY=YES,SUBAREA=07
CDRM0022 CDRM ISTATUS=INACTIVE,VPACING=1,CDRDYN=YES,
          CDRSC=OPT,RECOVERY=YES,SUBAREA=22
/+
```

Figure 93. Cross-Domain Resource Managers Defined in Host 07

Cross-Domain Resources

This part defines the "cross-domain resource" major node. In the example under consideration, CICS Transaction Server is the only cross-domain resource.

Figure 94 shows the definition.

```
CATALOG CDRS0007.B      REPLACE=YES
          VBUILD TYPE=CDRSC
CICS0022 CDRSC CDRM=CDRM0022
/+
```

Figure 94. Cross-Domain Resource Defined in Host 07

This finishes the VTAM and NCP definitions of the example NCP-to-NCP multiple-domain network.

Example NCP-to-NCP

Chapter 5. Connecting Two VSE/ESA Hosts in an APPN Network - An Example

This chapter presents a simple example of two VSE/ESA systems connected in an APPN network. For basic information on APPN networking, including its special terminology, refer to “SNA Components in APPN Networks” on page 4.

The VSE/ESA systems (network nodes 'V01' and 'V05') are connected by two different link types:

- SDLC leased line
- IBM Token Ring.

The connection is shown in the following diagram.

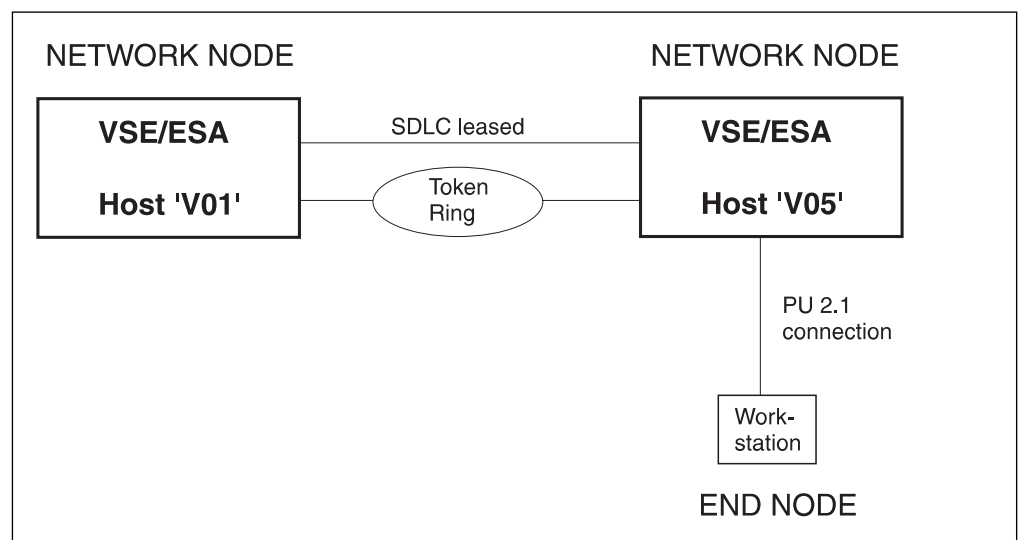


Figure 95. Example of Two VSE/ESA Systems Connected in APPN Network

The following pages show several VTAM definitions:

- Link books
- Application major node
- Class-of-service (COS) specifications
- Checkpoint VSE/VSAM files
- Start options
- VTAM startup job.

Definitions for the attached workstation are not included. The attachment is only shown to illustrate the position of an **end node**. Conceivably, the Host V01 node could also be an end node.

Link Books

At both network nodes, you need a link definition for each type of connection:

- SDLC leased line
- IBM Token Ring.

The following figure shows these two link definitions for host V01, the next figure for host V05.

Note that the DIALNO parameter of the PATH statement, in an APPN definition, has an arbitrary value.

```

* SDLC LEASED LINE   FROM V01 TO V05
CATALOG CPLL501.B REPLACE=YES
CPLL501  VBUILD      TYPE=CA
GRP501   GROUP      DIAL=NO, ISTATUS=ACTIVE, LNCTL=SDLC
LINE501  LINE        ADDRESS=501, MODE=PRI
PU501    PU          PUTYPE=2, XID=YES, CONNTYPE=APPN, CPCP=YES, ADDR=C1
/++
.
.
.
CATALOG CPTR900.B  REP=YES
*****
*          LAN MAJOR NODE FOR CONNECTION V01 TO V05          *
* MACADDR: TOKEN-RING ADDRESS OF THE ADAPTER ON THIS PU      *
*****
CPTR900  VBUILD TYPE=LAN
PORT900  PORT  CUADDR=900,                                     X
          MACADDR=400900000000,                               X
          LANCON=(02.0,2),                                    X
          MAXDATA=4096,                                       X
          SAPADDR=4
*
GRP900   GROUP DIAL=YES
LINE900  LINE  ISTATUS=ACTIVE, ANSWER=ON, CALL=INOUT
PU        PU
/++
.
.
.
CATALOG CPTR900S.B  REP=YES
*****
*  SWITCHED MAJOR MODE FOR TOKEN-RING CONNECTION  V01 TO V05  *
*  MACADDR: TOKEN-RING ADDRESS OF THE ADAPTER ON THE OTHER PU  *
*****
CPTR900S VBUILD TYPE=SWNET, MAXNO=25, MAXGRP=1
PU900    PU      ISTATUS=ACTIVE, PUTYPE=2, ADDR=C2,           X
          MAXPATH=1,                                         X
          SAPADDR=4,                                         X
          MACADDR=400200000000,                             X
          MAXOUT=7,                                          X
          IRETRY=YES,                                        X
          DISCNT=YES,                                       X
          CPCP=YES,                                         X
          CONNTYPE=APPN,                                    X
          CPNAME=SSCP0005
PATH900  PATH    DIALNO=PATH21D-444-5894,                   X
          PID=1,                                           X
          GID=1,                                           X
          USE=YES,                                          X
          GRPNM=GRP900
/++

```

Figure 96. Link Books - SDLC Leased and Token-Ring (Host V01)

APPN Connection - Example

```
* SDLC LEASED LINE   FROM V05 TO V01
CATALOG CPLL181.B REPLACE=YES
CPLL181  VBUILD      TYPE=CA
GRP181   GROUP      DIAL=NO, ISTATUS=ACTIVE, LNCTL=SDLC
LINE181  LINE       ADDRESS=181, MODE=SEC
PU181    PU         PUTYPE=2, XID=YES, CONNTYPE=APPN, CPCP=YES, ADDR=C1
/++
.
.
.
CATALOG CPTR200.B  REP=YES
*****
*          LAN MAJOR NODE FOR CONNECTION V05 TO V01          *
* MACADDR: TOKEN-RING ADDRESS OF THE ADAPTER ON THIS PU      *
*****
CPTR200  VBUILD TYPE=LAN
PORT200  PORT  CUADDR=200,                                     X
          MACADDR=400200000000,   ADDRESS OF THE LAN OF THIS CPU X
          LANCON=(10.0,5),
          MAXDATA=4096,
          SAPADDR=4
          X
*
GRP200   GROUP DIAL=YES
LINE200  LINE  ISTATUS=ACTIVE, ANSWER=ON, CALL=INOUT
PU       PU
/++
.
.
.
CATALOG CPTR200S.B  REP=YES
*****
*          SWITCHED MAJOR MODE FOR TOKEN-RING CONNECTION V05 TO V01 *
*          MACADDR: TOKEN-RING ADDRESS OF THE ADAPTER ON THE OTHER PU *
*****
CPTR200S VBUILD TYPE=SWNET, MAXNO=25, MAXGRP=1
PU200    PU      ISTATUS=ACTIVE, PUTYPE=2, ADDR=C2,
          MAXPATH=1,
          SAPADDR=4,
          MACADDR=400900000000,   ADDR OF THE LAN OF THE OTHER CPU X
          MAXOUT=7,
          IRETRY=YES,
          DISCNT=YES,
          CPCP=YES,
          CONNTYPE=APPN,
          CPNAME=SSCP0001
          X
PATH200  PATH    DIALNO=PATH21D-444-5894,
          PID=1,
          GID=1,
          USE=YES,
          GRPNM=GRP200
          X
/++
```

Figure 97. Link Books - SDLC Leased and Token-Ring (Host V05)

Application Major Node

The application major node defines all applications that run at the 'this host' (that is, the one where the definition is made).

The following figure shows only the application major node at host V05 (definitions for host V01 are similar). ECHO0005 and RECEIVLU are user-supplied VTAM applications.

```

CATALOG APPL0005.B          REPLACE=YES
APPL0005 VBUILD TYPE=APPL
DBDCCICS APPL AUTH=(VPACE,PASS,ACQ),VPACING=4,EAS=64,PARSESS=YES
CICS0005 APPL AUTH=(VPACE,PASS,ACQ),VPACING=4,EAS=64,PARSESS=YES
PWR0005  APPL AUTH=(PASS,ACQ),VPACING=3,MODETAB=VTMLOGTB,DLOGMOD=PNET
PNET0005 APPL AUTH=(ACQ,PASS),VPACING=3,MODETAB=VTMLOGTB,DLOGMOD=PNET
IESWAITT APPL AUTH=(NOACQ)
ECHO0005 APPL AUTH=(ACQ,SPO,PASS),PARSESS=YES,APPC=YES,                X
               MODETAB=TAPAPPCM,DLOGMOD=APPCLOGA
RECEIVLU  APPL AUTH=(ACQ,PASS),VPACING=7,APPC=YES,AUTOSES=1,            X
               MODETAB=TAPAPPCM,PARSESS=YES,DLOGMOD=APPCLOGA,          X
               DMINWNL=3,DMINWNR=3,DRESPL=ALLOW,DSESLIM=6
/+

```

Figure 98. Application Major Node (Host V05)

Class-of-service (COS) Specifications

IBM provides seven default APPN class-of-service definitions:

```

CPSVCMG
SNASVCMG
#CONNECT
#INTER
#INTERSC
#BATCH
#BATCHSC

```

It is recommended that you use the defaults wherever possible and that the class-of-service definitions be the same throughout the network.

The definitions are contained in sublibrary PRD1.BASE as member COSAPPN.Z. You must recatalog them as member COSAPPN.B as shown in the example job below.

APPN Connection - Example

```
* $$ JOB JNM=COSAPPN,CLASS=0,DISP=D
// JOB COSAPPN
// EXEC LIBR
A S=PRD2.CONFIG
CATALOG COSAPPN.B          REPLACE=YES
* $$ SLI MEM=COSAPPN.Z,S=PRD1.BASE
/+
/*
/&
* $$ EOJ
```

Figure 99. Cataloging Class-of-Service (COS) Definitions

VSE/VSAM Files for Directory Data Base

VTAM uses topology and routing services (TRS) and directory services (DS) to learn and maintain information on the topology and resources of the network.

You have to define four VSE/VSAM files in support of those services. The following figure shows a job stream that defines the corresponding clusters.

```

*/$$ JOB JNM=SKAPPN,CLASS=0,DISP=D
// JOB SKAPPN          DEFINE FILES FOR VTAM APPN
* *****
* *
* * - - - - - VTAM CLUSTERS FOR APPN CONNECTIONS - - - - -
* *          DEFINE CLUSTERS AND ACTIVATE LABELS
* *
* * THIS JOB DEFINES THE VTAM CLUSTERS USED FOR APPN.
* * THE CLUSTER NAMES ARE:
* *      VTAM.DSDBCTL      NAME:   DSBCTL
* *      VTAM.DSDB1       NAME:   DSDB1
* *      VTAM.DSDB2       NAME:   DSDB2
* *      VTAM.TRSDB       NAME:   TRSDB
* *
* * THE COS TABLE IS COPIED TO PRD2.CONFIG
* *
* * THE FOLLOWING VARIABLE IS USED AND HAS TO BE CHANGED:
* *
* *      -V001-  VOLUME OR VOLUMES THAT HAVE AVAILABLE VSAM SPACE
* *                WHICH IS CONTROLLED BY THE USER CATALOG: VSESPUC
* *
* *****
*

```

AFTER YOU HAVE MODIFIED THE SKELETON ENTER '@DTRSEXIT'
FROM THE EDITOR'S COMMAND LINE.
THIS MACRO WILL DELETE ALL DESCRIPTIVE TEXT FROM THIS FILE,
BY DELETING ALL LINES WHICH ARE MARKED WITH THE CHARACTER C
IN COLUMN 71.

Figure 100 (Part 1 of 3). Defining VSE/VSAM Files for Directory Data Base

C

```

// DLBL IJSYSUC,'VSESP.USER.CATALOG',0,VSAM
// EXEC IDCAMS,SIZE=AUTO
DELETE (VTAM.DSDBCTL) PURGE CL          -
      CATALOG(VSESP.USER.CATALOG)
DELETE (VTAM.DSDB1) PURGE CL            -
      CATALOG(VSESP.USER.CATALOG)
DELETE (VTAM.DSDB2) PURGE CL            -
      CATALOG(VSESP.USER.CATALOG)
DELETE (VTAM.TRSD1) PURGE CL            -
      CATALOG(VSESP.USER.CATALOG)
DEFINE CLUSTER (NAME(VTAM.DSDBCTL)      -
      RECORDS (1 1)                    -
      FREESPACE (20 10)                 -
      NONINDEXED                        -
      RECORDSIZE (20,20)                -
      REUSE                             -
      SHAREOPTIONS (2,3)                 -
      VOLUMES (-V001-))                 -
      CATALOG (VSESP.USER.CATALOG)
DEFINE CLUSTER (NAME(VTAM.DSDB1)        -
      RECORDS (1 1)                    -
      FREESPACE (20 10)                 -
      NONINDEXED                        -
      RECORDSIZE (1000,1000)            -
      REUSE                             -
      SHAREOPTIONS (2,3)                 -
      VOLUMES (-V001-))                 -
      CATALOG (VSESP.USER.CATALOG)
DEFINE CLUSTER (NAME(VTAM.DSDB2)        -
      MODEL (VTAM.DSDB1))               -
      CATALOG (VSESP.USER.CATALOG)
DEFINE CLUSTER (NAME(VTAM.TRSD1)        -
      MODEL (VTAM.DSDB1))               -
      CATALOG (VSESP.USER.CATALOG)
SET MAXCC = 0
*//*
// OPTION STDLABEL=DELETE
DSDBCTL
DSDB1
DSDB2
TRSD1
*//*
// OPTION STDLABEL=ADD
// DLBL DSDBCTL,'VTAM.DSDBCTL',,VSAM,CAT=VSESPUC
// DLBL DSDB1,'VTAM.DSDB1',,VSAM,CAT=VSESPUC
// DLBL DSDB2,'VTAM.DSDB2',,VSAM,CAT=VSESPUC
// DLBL TRSD1,'VTAM.TRSD1',,VSAM,CAT=VSESPUC
*//*
```

Figure 100 (Part 2 of 3). Defining VSE/VSAM Files for Directory Data Base

APPN Connection - Example

```
// EXEC IESVCLUP,SIZE=AUTO          ADD LABEL TO STD LABUP PROC
D                                  DSDBCTL
D                                  DSDB1
D                                  DSDB2
D                                  TRSDB
A VTAM.DSDBCTL                     DSDBCTL VSESPUC
A VTAM.DSDB1                       DSDB1   VSESPUC
A VTAM.DSDB2                       DSDB2   VSESPUC
A VTAM.TRSDB                       TRSDB   VSESPUC
*//*
// EXEC LIBR,PARM='MSHP'
CONNECT S=PRD1.BASE:PRD2.CONFIG
COPY COSAPPN.Z: COSAPPN.B R=Y
*//*
*//&
*/$$ E0J
```

Figure 100 (Part 3 of 3). Defining VSE/VSAM Files for Directory Data Base

Start Options

The following figure shows a start options list for host V05 (start options for host V01 are similar).

CATALOG ATCSTRA5.B	REPLACE=YES	
ASYDE=TERM,		X
APPNCOS=COSAPPN,		X
CONFIG=A5,		X
CDRSCTI=50,		X
COLD,		X
CDSERVR=NO,		X
CMPMIPS=100,		X
CMPVTAM=4,		X
CPCP=YES,		X
DATEFORM=DMY,		X
DYNADJCP=YES,		X
DYNLU=YES,		X
HOSTSA=5,		X
HOSTPU=NODE0005,		X
HOTIOTRM=25,		X
IOINT=70,		X
MSGMOD=NO,		X
MSGLEVEL=V4R2,		X
NOTNSTAT,		X
NETID=NET3246,		X
NODETYPE=NN,		X
NQNMODE=NQNAME,		X
PPOLOG=NO,		X
PROMPT,		X
ROUTERES=1,		X
SSCPNAME=SSCP0005,		X
SUPP=NOSUP,		X
SONLIM=(60,30),		X
SSCPDYN=YES,		X
SSCPID=5,		X
SSCPORD=PRIORITY,		X
SGALIMIT=500M,		X
SGA24=16M,		X
TRACE,TYPE=VTAM,SIZE=200,OPT=ALL,		X
XNETALS=YES,		X
BSBUF=(28,,,1),		X
CRPLBUF=(60,,,1),		X
IOBUF=(70,288,,,11),		X
LFBUF=(70,,,30),		X
LPBUF=(50,,,6),		X
SFBUF=(50,,,20),		X
SPBUF=(210,,,32),		X
XDBUF=(6,,,1)		X
/+		

Figure 101. Start Options List (APPN)

Notes:

1. By including the HOSTSA option, you indicate that the node is an Interchange Node (ICN). An ICN is an APPN network node with full subarea SSCP functions.
2. The name that is assigned to the SSCPNAME option is the control point name (CPNAME) of the node.

VTAM Startup Job

The figure below shows portions from a VTAM startup job that are relevant for APPN networks, in particular label information for VSE/VSAM files.

For a complete VTAM startup job refer to Figure 107 on page 204.

```
// DLBL DSDBCTL,'VTAM.DSDBCTL',,VSAM,CAT=IJSYSCT
// DLBL DSDB1,'VTAM.DSDB1',,VSAM,CAT=IJSYSCT
// DLBL DSDB2,'VTAM.DSDB2',,VSAM,CAT=IJSYSCT
// DLBL TRSDB,'VTAM.TRSDB',,VSAM,CAT=IJSYSCT
.
.
.
// EXEC ISTINCVT,SIZE=AUTO,PARM='CUSTNO=XXXX-XXX-XXXX,VTAMPW=YYYY-YYYY-X
      YYYY-YYYY-YYYY,LIST=A5',DSPACE=2M
```

Figure 102. VTAM Startup Job Statements

Note that startup parameter LIST=A5 points to start options list ATCSTRA5 (see the preceding figure).

Chapter 6. Tailoring VTAM

VTAM starts up and controls the communication resources. It activates and deactivates:

- Application program major nodes
- Application program minor nodes
- SNA and non-SNA major nodes
- SNA and non-SNA minor nodes
- The paths defined between subareas, for example, between VTAM and NCP.
- In an NCP environment, NCP supervises the protocol and data routing aspects. It handles line errors, performs error recovery actions, and controls dynamic buffering. Before it assumes its network control function, you must load it into the communication controller. To do this, use the:
 - VTAM VARY command or
 - the ACF/SSP Independent Loader Utility (see “Loading NCP” on page 201).

But before you actually start up VTAM, you may want to *tailor*, assemble (if necessary), and catalog the following IBM-supplied default values:

- Partition size.
- Startup options.
- Configuration list.
- Path definitions.
- Application program major nodes.
- USS tables.
- Logmode tables.

Note: Part of the following discussion relates only to subarea networks, not to APPN networks.

Startup Options

Under VSE/ESA the VTAM startup options are taken from five sources:

1. Defaults
2. Values entered through a dialog
3. Values created by the system
4. Values entered in a special member
5. Values entered at VTAM startup time.

Defaults

CATALOG	ATCSTR00.B	REPLACE=YES	
SSCPID=1,			*
HOSTSA=1,			*
SSCPNAME=SSCP0001,			*
HOSTPU=NODE0001,			*
NOPROMPT,			*
NETID=VTAM1,			*
MAXSUBA=255,			*
CONFIG=00,			*
IOINT=0,			*
SGALIMIT=0,			*
BSBUF=(28,,,1),			*
CRPLBUF=(60,,,1),			*
LFBUF=(70,,,11)			*
IOBUF=(70,288,,,11),			*
LPBUF=(12,,,6),			*
SFBUF=(20,,,20),			*
SPBUF=(210,,,32),			*
XDBUF=(6,,,1)			*
/+			

Values Entered through a Dialog

- HOSTSA
- PROMPT
- NETID

2 (Resource Definition)
6 (Maintain VTAM Startup Options)

```

|+++++| |+++++|
7/8 Administrator 7/8 Synonym 7/8
7/8 Fast Path:    26 7/8 Default:      Yours: 7/8
|+++++| |+++++|

```

At the end of the dialog, a new list of startup options is stored in library 51. Also, the dialog builds a job to catalog the new options into sublibrary PRD2.CONFIG.

When changing the HOSTSA, you get prompted for *automatic renaming* of VTAM resources. A reply of **1** (=yes) replaces the default **host** subarea in the VTAM netname by the new subarea value. Consider **carefully the following two notes**:

Notes:

1. Do not opt for automatic renaming if you had deviated from the Hardware Configuration dialog's naming conventions (see Appendix A, "Naming Convention" on page 221). Automatic renaming could interfere with your own naming scheme by overriding the right-most positions of the netname which contain the subarea number.
2. After an automatic renaming, regenerate any NCP that is associated with the new subarea host. Various NCP definition statements refer to the host's subarea number.

Values Created by the System

Whenever you enter something in the *Maintain VTAM Startup Options* dialog, the system builds three values depending on your input to the dialog:

- SSCPID
- SSCPNAME
- HOSTPU

Again, these options will be integrated into the list of startup options which is stored in library 51.

Values Entered in Member E\$VTMST

To modify VTAM startup options other than those described above, use the special member E\$VTMST in library 2. The member has already initial entries as delivered with your VSE/ESA. They have the same format as in the list shown in Figure 103 on page 194.

Change the existing entries, or add new ones, according to your needs. The options in member E\$VTMST are "appended" to the options built from the dialog, and both groups are integrated into the startup options list in library 51.

Values Entered at VTAM Startup Time

You can supply startup options at the time of VTAM startup if PROMPT is specified in the source book ATCSTR00.B. The operator either

- enters startup options at the console during VTAM startup **or**
- enters 'LIST=xx' during VTAM startup to read in a different list altogether, say, ATCSTR02. In this case, the operator would enter 'LIST=02' during VTAM startup. ATCSTR02 can also contain the 'CONFIG=xx' parameter pointing to the configuration list in the VTAM source book ATCCONxx.

Note that you may also supply a LIST value in the PARM list of the EXEC statement that starts VTAM.

Configuration List

When starting up, VTAM needs a configuration list of major nodes to be activated. These are application program major nodes and SNA as well as non-SNA local and remote major nodes. The configuration list must contain system-provided major nodes and it may contain your own major nodes.

Path Definitions

You would, for example, add

- NCP major nodes
- X.25 packet-switched major nodes VTMXPU and PORxxxxx
- Local Area Network (LAN) major nodes VTMTRLc and VTMTRSc

if you choose to have them activated automatically at VTAM startup time.

But be aware that the more major nodes you select to be activated during VTAM startup the longer this startup will take. It is conceivable that an installation would want the local devices activated quickly and the remote part (an NCP for example) in a second step. In this case the remote part should be activated manually, not via the configuration list.

The default configuration list is stored in PRD2.CONFIG under the name ATCCON00.B (see Figure 104). If you want to add your own major nodes, you should copy the source book to your primary library. When you recatalog the source book, think of renaming it (see the next paragraph).

VTMAPPL,	*
VTMSNA,	*
VTMNSNA,	*
VTMPATH,	*
VTMCA1,	*
VTMCA2,	*
VTMCA3,	*
VTMCTCA,	*
VTMCDRM,	*
VTMCDRS,	*
VTMSW1	

Figure 104. Default VTAM Configuration List

By default, VTAM searches the source book ATCCON00 for that configuration list. If you used CONFIG=02 in your startup options list ATCSTRxx, you would have to define a source book with the name ATCCON02 which VTAM would search first. If you want a different configuration list, depending on your specific work profile on a given day, you could also use, say, ATCCON03. In this case, the operator should enter CONFIG=03 for ATCCON03.

The activation of major nodes is always in the sequence in which the major node names appear in the configuration list. If you use LOGAPPL=DBDCCICS and ISTATUS=ACTIVE in your LU minor node definition for automatic logon to CICS Transaction Server, put the APPL entry first, before the SNA and non-SNA (local and remote) major nodes. This will activate the **application prior to the terminals** accessing that application.

Path Definitions

Communication between two addressable nodes, for example, VTAM and NCP, takes place via a path called a route. You must define one or more routes whenever your system has at least two subareas (a single domain with an Integrated Communication Adapter does not require a route definition).

You can define two levels of routing, a physical route called Explicit Route (ER) and a logical route, called Virtual Route (VR). One end of each VR must be located in a host subarea, that is, the VTAM subarea.

You define routes via the PATH macro. Skeleton SKDTRNET instructs you how to code the PATH macro. Refer to section VTAM8 of the skeleton. For an example see Figure 71 on page 149.

Application Major Node

All application programs using VTAM services (such as CICS) must be defined to VTAM using the APPL statement in an application major node definition. For example, the application name DBDCCICS in the LOGAPPL entry in Figure 51 on page 103 must be defined to VTAM in an application major node.

VSE/ESA provides default definitions which are stored as member VTMAPPL.B in sublibrary PRD2.CONFIG. Refer to Figure 105 for the VSE/ESA-provided defaults.

```
CATALOG VTMAPPL.B      REPLACE=YES
VTMAPPL  VBUILD TYPE=APPL
DBDCCICS APPL  AUTH=(PASS,ACQ),MODETAB=IESINCLM,PARSESS=YES
PRODCICS APPL  AUTH=(PASS,ACQ),MODETAB=IESINCLM,PARSESS=YES
OLDCICS  APPL  AUTH=(PASS,ACQ),MODETAB=IESINCLM,PARSESS=YES
POWER    APPL  AUTH=(ACQ)
PNET     APPL  AUTH=(PASS,ACQ),VPACING=3,MODETAB=VTMLOGTB,DLOGMOD=PNET
PSFAPPL  APPL  AUTH=ACQ,EAS=1,SONSCIP=YES
IESWAITT APPL  AUTH=(NOACQ)
/+
```

Figure 105. Default VTMAPPL - Application Major Node

The application major node name (VTMAPPL) in turn is listed in the configuration list example under “Configuration List” on page 195.

Note: IESWAITT is required for CICS Transaction Server startup.

The *Maintain VTAM Application Names* dialog helps you to define (among others) the following application **types**.

1. VSE/CICS
2. VSE/POWER RJE
3. VSE/POWER PNET
4. PSF/VSE
5. VSE/OFFICE
6. Selfdefined

Access the dialog as follows. Starting with the *VSE/ESA Function Selection* panel, select:

- 2 (Resource Definition)
- 5 (Maintain VTAM Application Names)

Application Major Node

```

+-----+ +-----+
| Administrator | | Synonym |
| Fast Path: 25 | | Default: | Yours: |
+-----+ +-----+

```

The dialog displays the *VTAM APPLID Maintenance: APPLID LIST* panel. For an example see Figure 106.

COM\$APPA		VTAM APPLID MAINTENANCE: APPLID LIST		
OPTIONS: 2 = ALTER AN APPLID 5 = DELETE AN APPLID				
OPT	APPLID	APPLICATION TYPE	APPLICATION PROPERTY	DEFAULT LOGAPPL
—	DBDCCICS	CICS	LOGAPPL	X
—	PRODCICS	CICS	LOGAPPL	—
—	OLDCICS	CICS	LOGAPPL	—
—	POWER	RJE		—
—	PNET	PNET		—
—	_____			—
—	_____			—
—	_____			—
—	_____			—
—	_____			—
PF1=HELP 2=REDISPLAY 3=END 5=PROCESS 6=AD				

Figure 106. Maintain VTAM Application Names

The panel lists the application names (APPLIDs) of the VTAM applications installed on your system. The applications shown are:

- CICS TS (Applid DBDCCICS)
- A second CICS TS (Applid PRODCICS)
- CICS/VSE 2.3 (Applid OLDCICS), used in addition to CICS TS
- RJE, a standard POWER/RJE definition
- PNET, a POWER networking application.

The APPLIDs listed are defined as minor nodes of the VTAM application major node VTMAPPL.

Other possible application types are PSF (if you are using the IBM software product Print Services Facility) and *selfdefined* for self-defined applications. The definition of self-defined applications is further explained a few lines below.

Application property LOGAPPL, as shown for application types CICS indicates that you can set up a direct signon to that application.

The dialog allows you to

- Add another application (**PF6**).

The application must be one of the 6 types listed above at the beginning of this section. In the example, a second CICS-type application has already been added.

The sixth type (*selfdefined*) lets you write your own application definitions in the special member E\$VTMAP. Your VSE/ESA as delivered to you already has in library 2 an initial (dummy) E\$VTMAP without any entries. You may add to this member, or you may create a separate E\$VTMAP in your primary library.

Code as many VTAM APPL statements (application minor nodes) as you need. **These definitions must be complete**, that is: **all parameters** that you want to have included must be present.

The dialog asks you to name the NEW APPLID. Choose any name that will identify this special set of APPL statements. Only if one in the set is designated as *default logon application* (see the next item below), the name of its APPL statement must be taken as NEW APPLID.

After you press ENTER, the dialog returns you to the original APPLID LIST (see Figure 106 on page 198). Press PF5 for *PROCESS*. The dialog will now include member E\$VTMAP (from your primary library or, if not there, from library 2) into the application major node.

- Define a default logon application for terminal configuration.

As was described on page 82, a default logon application is presented to you in the LOGAPPL parameter when you define a 3270 terminal. By entering an 'X' in the above panel, you declare the APPLID as that DEFAULT LOGAPPL.

Only one out of several CICS Transaction Server applications, or out of several self-defined applications, with the application property LOGAPPL can be specified as DEFAULT LOGAPPL. The LOGAPPL for the already configured terminals remains the same. Only the terminals which are configured from now on will get the new default LOGAPPL.

USS Table Definition

When a user starts an LU-LU session, that is, signs on to an application program at a display station, a USSTAB (Unformatted System Services Table) is used by USS (Unformatted System Services), a component of the SSCP. With the USS table, you can modify messages that are sent to the terminal to provide certain information to the user about a logon procedure.

The USS table is one of the VTAM tables which the user can provide if the default table is not adequate for a specific application.

VSE/ESA provides a table called VTMUSSTR for SNA display products and VTMUSSTB for non-SNA display products. A jobstream with the member name SKVTMUSS in VSE/ICCF library 59 assembles, link-edits, and catalogs these tables so that they are available to VTAM. The skeleton is not shown in this manual. However, the network definition skeleton SKDTRNET in its sections VTAM11 through VTAM13 has the same information.

You specify the table you want to use by coding the USSTAB parameter on the LU, LOCAL, or TERMINAL macros (for example see Figure 51 on page 103). If you do not specify your own USSTAB, VTAM uses the IBM default USSTAB with the phase name ISTINCDT as mentioned above.

Logon Mode Table Definition

Logon mode tables are the second category of tables you may want to specify for certain applications. Similar to USS tables, they are used by VTAM to interpret logon requests and to set proper session parameters when an application program (PLU) and a terminal (SLU) go into session. If you have only CICS Transaction Server applications in your system, there is no need to code these logon mode tables; CICS may generate its own session parameters from CICS terminal definitions. But if you use other applications, for example NetView, you must code a logon mode table.

Logon mode tables consist of mode entries. The tables must be assembled and link-edited into phases. The MODETAB macro defines the table, the MODEENT defines the entry, and MODEEND ends the table. The IBM publication *VTAM Customization* explains how to code logon mode entries.

To select a particular logon mode table and a particular entry within this table, you code the parameters

- MODETAB (for the table)
- DLOGMOD (for the entry)

in the VTAM definition statements:

- APPL
- LU
- TERMINAL

If you do not supply a logon mode table, an IBM-supplied logon mode table is used. Your VSE/ESA provides this table in sublibrary IJSYSRS.SYSLIB as IESINCLM.PHASE. The source is available in library 59 under the same name. A listing is shown in the appendix, in Figure 123 on page 282.

If you replace or modify the IBM-supplied entries, you should copy the IBM-supplied table and **give a new name** to this copy. Make sure to adjust the references to the table name in the APPL, LU, and TERMINAL statements accordingly.

Skeleton SKVTMMOD (see Figure 116 on page 241) also helps you code the logon mode table entries.

You can specify logon mode entries either in the logon mode table or in the USS logon command. If you use both, the USS command overrides the DLOGMOD parameter.

Loading NCP

Before you load the NCP into the communication controller, you must create a sequential disk file for the NCP module to be loaded into the communication controller. VSE/ICCF skeleton SKNCPCLF in library 59 contains job NCPFILE to create that file (see “NCP Load Module File Skeleton SKNCPCLF” on page 243). Modify it to match your configuration and run the job. To actually load the NCP load module into the communication controller, either

- Issue the VTAM command
V NET,ACT,ID=ncpname,LOAD=YES
or
- Use the ACF/SSP independent loader utility to load NCP from disk. Use VSE/ICCF skeleton SKNCPLD containing job LOAD37XX (see “ACF/SSP Independent Loader Utility Skeleton SKNCPLD” on page 244).

If loaded via the independent loader utility, the NCP has to be activated with the VTAM command

V NET,ACT,ID=ncpname,LOAD=NO

Loading NCP

Chapter 7. Operating Considerations

VSE/ESA Operating

Part of the following discussion relates only to subarea networks, not to APPN networks.

VSE/ESA Startup

Before you initiate an SNA session, VSE/ESA must be started. This is normally part of your automatic startup.

After you installed your VSE/ESA, a default VSE/ESA startup job stream is used by the system. Its VSE/POWER job name is VTAMSTRT. It is based on the skeleton job stream SKVTAM which is shown in Figure 107 on page 204.

If you want to add your installation-dependent parameters, you must modify skeleton SKVTAM. Copy it from library 59 into your primary library and follow the instructions that are given inside the member.

After you complete the skeleton, submit it to the VSE/POWER reader queue. If you chose a VSE/POWER name other than VTAMSTRT, make sure you adjust skeleton SKUSERBG which is the base for the automatic startup. The publication *VSE/ESA Administration* SC33-6605 gives information on how to handle SKUSERBG.

The VTAM startup shown here is based on the assumption that VTAM runs under VSE/POWER. This assumption does not hold in *environment C* which is VSE/ESA's partition layout for unattended node operation. For more information on this environment refer to the IBM manual *VSE/ESA Unattended Node Support*.

```

        AFTER YOU HAVE MODIFIED THE SKELETON ENTER '@DTRSEXIT'
        FROM THE EDITOR'S COMMAND LINE.
        THIS MACRO WILL DELETE ALL DESCRIPTIVE TEXT FROM THIS FILE,
        BY DELETING ALL LINES WHICH ARE MARKED WITH THE CHARACTER C
        IN COLUMN 71.

* *****
*
*           VTAM STARTUP JOB FOR PARTITION F3
*           -----
*
*   IT ASSUMES, THAT VTAM WILL BE STARTED IN A POWER CONTROLLED
*   PARTITION.
*
* *****
* THIS SKELETON PROVIDES A JOB WHICH
*
* 1. CATALOGS THE VTAM STARTUP JOB AS VTAMSTRT.Z INTO IJSYSRS.SYSLIB
* 2. CATALOGS THE PROCEDURE LDVTAM WHICH LOADS VTAMSTRT.Z INTO THE
*   POWER RDR QUEUE VIA DTRIINIT.
* 3. EXECUTES LDVTAM.PROC
*   IF YOU DO NOT WANT TO LOAD IT IMMEDIATELY INTO THE ACTIVE RDR
*   QUEUE, DELETE FOLLOWING LINE:
*   // EXEC PROC=LDVTAM
*
* NOTE: ADDITIONAL '$$' SIGNS ARE NEEDED IN THE JOB TO BE CATALOGED.
*       THESE SIGNS MASK THE POWER JECL STATEMENTS SO THAT THEY ARE
*       NOT EXECUTED. THE DTRIINIT PROGRAM CHANGES THE '$$' SIGNS
*       INTO THE APPROPRIATE JECL STATEMENTS.
*
* *****
* FILL IN MISSING PARAMETERS IN VTAMSTRT
* -----
* FILL IN THE MISSING PARAMETERS SHOWN HERE BY A STRING OF Y'S. THE
* NUMBER OF Y'S INDICATES THE MAXIMUM OF CHARACTERS EXPECTED.
* REMOVE CHARACTER C IN COLUMN 71 IF Y'S ARE CHANGED.
*
* CHANGE,DELETE OR ADD ANY STATEMENT OR PARAMETER NEEDED TO MEET YOUR
* REQUIREMENTS.
*
* CHANGE THE DEFAULT CUSTOMER NUMBER AND THE RELATED PASSWORD IN THE
* // EXEC ISTINCVT STATEMENT TO YOUR INDIVIDUAL VALUES.
*
* *****
* CHANGING THE NAME 'VTAMSTRT.Z'
* -----
*
* DO NOT FORGET TO UPDATE:
* - PROCEDURE USERBG (SKUSERBG)
* - PROCEDURE COLDJOBS (SKCOLD)
* *****

```

Figure 107 (Part 1 of 3). Skeleton SKVTAM for VSE/ESA Startup Job

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Figure 107 (Part 3 of 3). Skeleton SKVTAM for VSE/ESA Startup Job

Starting VSE/POWER PNET

PSTART PNET,BOEVSES5

Session Initialization

Sessions between logical units can be initiated:

1. By VSE/ESA automatically via the application program named in the LOGAPPL=xxxxxxx LU definition statement or via the VTAM Application Selection Menu.
2. By an application program. In this case, CICS Transaction Server, for example, simulates a logon on behalf of the secondary logical unit (SLU) if you coded CONNECT=AUTO in the TCT TYPE=TERMINAL macro **and the terminal is powered on**.

It is also possible that the master terminal operator, via the CICS TS master terminal command CEMT, acquires a terminal.

3. By a terminal.

The terminal issues a request which causes it to be logged on to the application program. The terminal user enters, for example:

- LOGON APPLID(DBDCCICS)

at the terminal which has been activated by VSE/ESA (said to be in SSCP-LU session)

or

the appropriate application logon command represented by perhaps an abbreviated command shown in an application panel.

4. By the operator who specifies certain LUs to be logged on to certain application programs by entering:

- V NET,ACT,ID=luname,LOGON=DBDCCICS

at the console.

LU-LU Sessions

There are four session types which VSE/ESA can establish. They are:

- SSCP-PU
- SSCP-LU
- LU-LU
- SSCP-SSCP (for multiple domains only)

For the LU-LU session type it is recommended that, if you have **only one CICS Transaction Server** installed, use the **automatic logon** technique. If you have **more than one CICS Transaction Server** installed, use the **SLU-initiated** technique. If you have **several application programs** installed which can be accessed from one terminal and you **code your own USS table**, users can more easily select those application programs from a selection panel. To establish user-defined VSE/ESA tables, see "USS Table Definition" on page 199.

To establish a session, VSE/ESA needs session parameters (such as RECEIVESIZE and others) which are obtained from the CICS Transaction Server terminal definition. Therefore, a separate VSE/ESA LOGMODE table entry is not needed. In certain cases, however, take NetView for example, you should have a separate LOGMODE table. For how to code such a table, see "Logon Mode Table Definition" on page 200.

Controlling Your Network (including PNET)

After you have brought up VSE/ESA, you can control all major and minor nodes in VSE/ESA by issuing activating or deactivating commands for these nodes.

For example, in order to **activate** your connections, you must activate all major and minor nodes using the VARY NET,ACT command. The format is:

```
VARY NET,ACT,ID=xxxxxxx
```

Use the following commands to start:

```
VARY NET,ACT,ID=linename
```

```
VARY NET,ACT,ID=puname
```

where ID is the node name cataloged in the VSE/ESA source library. If you activate a **major node** and if you generated the minor nodes under it with ISTATUS=ACTIVE, the minor nodes will become active also.

You start VSE/POWER connections like so:

```
PSTART PNET,node ID      PNET over an SDLC line
```

```
PSTART PNET,node ID,,cuu  PNET over a  BSC  line
```

```
PSTART RJE,SNA           RJE over an SDLC line
```

```
PSTART RJE,lineaddr      RJE over a  BSC  line
```

Similarly, if you want to **deactivate** a node, use the VARY NET,INACT command. The format is:

```
VARY NET,INACT,ID=xxxxxxx
```

For example, to deactivate application program PAYROLL, say:

```
VARY NET,INACT,ID=PAYROLL
```

Note: If you have updated the VSE/ESA configuration entries, be sure to deactivate them and then reactivate them to get the changes online.

To deactivate VSE/POWER connections, use the PSTOP command:

```
PSTOP PNET,node ID      PNET over an SDLC or a BSC line
```

```
PSTOP RJE,SNA           RJE over an SDLC line
```

```
PSTOP lineaddr          RJE over a  BSC  line
```

Activating Path Definitions

All paths which you defined for the SNA subareas and cataloged in the VSE/ESA source library must be activated using the VARY NET,ACT command. To activate PATH1, say:

```
VARY NET,ACT,ID=PATH1
```

Similarly, if you want to deactivate a path, use the VARY NET,INACT command. The format is:

```
VARY NET,INACT,ID=xxxxxxx
```

Diagnosing with VSE/ESA

VSE/ESA allows you to test communication links, display NCP storage, perform various traces, and collect tuning statistics. You can check into buffer contents, buffer usage, I/O activity, and various internal operations. To activate a trace, use the F NET,TRACE command. For example, to trace the I/O activity of an NCP node, say NCPNEW7, you would enter:

```
F NET,TRACE,ID=NCPNEW7,TYPE=IO
```

This places the output of the I/O trace in the VSE/ESA trace file. Default assignments are shown in Figure 107 on page 204 (SYS001 and SYS004). Make sure you have loaded label information for file TRFILE into STDLABEL.PROC.

To end the trace, enter:

```
F NET,NOTRACE,ID=NCPNEW7,TYPE=IO
```

To print the contents of the trace, use the TPRINT program (described in ACF/VTAM Operation SC31-6408).

Session Termination

Three types of session termination are possible depending on who initiates the request.

1. SLU-requested session termination

In this case, the operator at a display terminal (SLU) enters a logoff command which disconnects this operator from the application program. The format is:

```
LOGOFF [APPLID(app1 name)] [TYPE(COND|UNCOND|FORCE)] [HOLD(YES|NO)]
```

where you must enter the application name from which to log off, whether the type of LOGOFF is conditional, unconditional (default), or forced, and whether or not the SSCP-PU, that is, the higher ranking, session is to be maintained (default) or not.

2. Application program-requested session termination

In this case, the application program wants to terminate the session with a terminal (SLU). This could be activated by a terminal operator entering CSSF LOGOFF or by the master terminal operator disconnecting all connected terminals or only specific ones. Since these commands do not interrupt the SSCP-LU session, VSE/ESA commands can be entered again from any terminal.

3. Operator-requested session termination

In this case, the VSE/ESA operator disconnects a specific logical unit from a specific application program. The operator enters, at the system console:

```
V NET,TERM,ID=luname
```

or

```
V NET,INACT,ID=luname
```

The latter command actually terminates the SSCP-LU session first, and with it of course, the lower ranking LU-LU session.

Terminating VSE/ESA

To shut down VSE/ESA connections, use the HALT command (or its more common form: the Z command). Two types of VSE/ESA shutdown are possible.

1. In a **normal** shutdown, issue the command

Z NET

This lets VSE/ESA request application programs to disconnect themselves when convenient. They are not canceled immediately. Therefore, when you issue this form of Z command, currently connected programs are not immediately forced to disconnect themselves. Application programs that do not use VSE/ESA at the time cannot initiate a session after the Z command is given.

2. If you want to shut down your network **as quickly as possible**, enter:

Z NET,QUICK

Application programs not using VSE/ESA can no longer access it. Existing I/O requests are processed but new I/O requests are not accepted and no new LU-LU sessions are possible. Z NET,QUICK issues VARY NET,INACT commands with the IMMEDIATE option for every active major node.

Cross-Domain Operating

This section describes special functions built into VSE/ESA. Be aware that powerful tools for cross-domain operating are offered through NetView, VSE/DSNX, and (especially) TCP/IP.

Remote Operating of System Console

You can view the console of an interconnected VSE/ESA and enter certain commands for that system by using the *Display Console* dialog of the Interactive Interface.

After you do a cross-domain logon, the procedure to select the dialog and to work with the dialog is exactly the same as if you were a local user of the interconnected system (for details, see the IBM manual *VSE/ESA Operation*) SC33-6382 .

In case of a cross-domain logon, you will see the name of the system in the network (VSE/ESA application ID) on the first line of the console display.

Submitting Jobs to Other Systems

If you are using TCP/IP for VSE/ESA in your VSE/ESA system, you are recommended to use the File Transfer Program (FTP) utility to transfer or submit jobs to other systems. Refer to the IBM manual *TCP/IP for VSE/ESA User's Guide* SC33-6601, for details of how to use this facility.

The remainder of this section assumes that you are *not* using the FTP facility within TCP/IP for VSE/ESA.

If your system is part of a cross-domain network, you can also submit locally created jobs for remote processing. VSE/ESA dialogs assist you.

To submit jobs to other systems as well as transfer and retrieve tasks, the following (which are discussed in the following sections) must have been established:

- PNET support in VSE/POWER
- The VSE/POWER Network Definition Table (NDT) cataloged in sublibrary PRD2.CONFIG
- A list of PNET nodes as member PNT\$NODE in library 2.

The Network Definition Skeleton SKDTRNET assists you in coding the NDT and PNT\$NODE. See Figure 79 on page 163 and Figure 81 on page 166.

Start with the *VSE/ESA Function Selection* panel and then select:

- 3 (Operations)
- 9 (Transfer Files and Jobs to Another System)
- 3 (Submit a Job to Another System)

```

┌──────────────────────────────────┐ ┌──────────────────────────────────┐
7/8 Administrator      7/8 7/8 Synonym      7/8
7/8 Fast Path: 393      7/8 7/8 Default: _____ Yours:      7/8
└──────────────────────────────────┘ └──────────────────────────────────┘

```

The job you submit must be stored as a VSE/ICCF library member. Have the following information ready when you invoke the dialog:

- Library number and name of VSE/ICCF member and password, if applicable.
- Node ID of the system to process the job.
- Node ID of the system to receive the output.

VSE/POWER uses these unique node IDs to route data between systems. There are actually two panels which you have to fill out: the first with the library number and member name, and password if necessary, and the second with job-specific processing and routing information. Make sure that the job you want to submit does not have a destination parameter with parentheses on the JECL statements. VSE/ESA dialogs do not create jobstreams with these parameters. If destination parameters exist for non-dialog created jobs, they should not contain parentheses.

For the second panel, you need the following information:

- Node ID of the receiving system

Initially, the node ID specified in the VSE/POWER JECL of the job is displayed on the panel. If the job specifies no node ID, your node ID displays on the panel; just replace it with the node ID of the receiving system. If you type a '?' in the node-ID field, you get a listing of possible nodes to send your job to.

- Output parameters

The displayed values for class, disposition, and number of copies (for list output) were established when the job was created. Change these values if you have to.

If you send a job to an OS/390 system, the values in the output parameter fields are ignored. This includes the defaults and the values you would provide.

- Access Control Parameters

The job's destination node may be a system with VSE security activated. Therefore, from your (the originating) node, security information may have to be passed along. In particular, the job would have to indicate its access authorization by way of *user ID* and *password*. (For detailed information on

concepts and terms related to VSE access control, refer to the IBM manual *VSE/ESA Guide to System Functions* SC33-6611 .)

The destination node is a VSE/ESA 1.3 (or higher) system:

If the destination node is a VSE/ESA system and belongs to the same *security zone* (VSE/POWER) as the originating node, user ID and password need not be specified. The destination node *inherits* those values from the originating node.

On the other hand, you must specify user ID and password if the two nodes belong to different security zones.

The destination node is a pre-1.3 VSE/ESA or VSE/SP system:

If VSE security is active in that system, you should have coded in PNT\$NODE one of the node descriptors for *BACKLEVEL SYSTEMS WITH SECURITY*: VSPS, VSES. In this case the job submission dialog prompts you for user ID and password.

Transferring/Retrieving Files to/from Other Systems

VSE/ESA provides dialog support that lets you *transfer* (send) VSE/VSAM files or VSE/ICCF library members to other systems or receive VSE/VSAM files or VSE/ICCF library members from other systems. Both KSDS and ESDS files can be sent or received. A maximum record length of 32K is supported.

The support is built upon VSE/POWER's PNET function. This means:

1. Your VSE/ESA system must have been generated with PNET support. See also section "VSE/POWER Networking (PNET)" on page 24.
2. Your network is described in the Network Definition Table (NDT). The table is cataloged in sublibrary PRD2.CONFIG.
3. You place a list of PNET nodes as member PNT\$NODE in library 2.

The network definition skeleton SKDTRNET gives coding assistance for the last two tasks (see Figure 79 on page 163 and Figure 81 on page 166).

The destination system also is either a PNET node or a JES2/3 node (if it is an OS/390 system). The transfer function uses the VSE/POWER transmit (XMT) queue at the sending system.

Note: If the destination node is a system running under VM, VSE/ESA directs the transfer directly to that system (as opposed to the VM reader queue). The only exception is the transfer of a VSE/ICCF member which can be sent to a CMS user ID.

If you do not provide your own JCL for exchanging a VSE/VSAM file between your VSE/ESA system and another node, VSE/ESA generates a JOB statement as well as job control for storing and retrieving the VSE/VSAM file (the same holds true for transferring and retrieving a VSE/ICCF member).

If the other node is an OS/390 system, you must provide at least a JOB statement by way of a JCL-ID. JCL parameters to be used as defaults are coded in section SP3 of the network definition skeleton SKDTRNET.

Job control statements that you do provide are coded in section SP4 of the network definition skeleton SKDTRNET and cataloged as member of type U (member name 'jcl-id.U') in library PRD2.CONFIG. You refer to them by corresponding JCL-IDs in section SP3 from where they are cataloged in member PNT\$JCLT of VSE/ICCF library 2.

The discussion of sections SP3 and SP4 (starting on page 167) contains detailed information plus examples on how to code and work with JCL-IDs.

The following sections occasionally draw your attention to "Access Control Considerations." If you are not familiar with the terminology used, you may consult the IBM manual *VSE/ESA Guide to System Functions* SC33-6611 , chapter "Protecting Data".

Transferring VSE/VSAM Files

Use the VSE/ESA-provided dialogs. Starting with the *VSE/ESA Function Selection* panel, select:

3 (Operations)
9 (Transfer Files and Jobs to Another System)
1 (Transfer Files to Another System)

```

|+-----+| |+-----+|
7/8 Administrator 7/8 Synonym 7/8
7/8 Fast Path: 391 7/8 Default: _____ Yours: 7/8
|+-----+| |+-----+|

```

For the following discussion, use Figure 108 on page 215 as an illustration.

To send a VSE/VSAM file to another system, you need the:

- PNET Node ID of the receiving system. When you type '?', a list of possible node IDs is displayed.
- ID of the file at your system and (for files not in the master catalog) name of the user catalog.
- ID of the file at the receiving system and (for files not in the master catalog) name of the user catalog.

Both of these files must already be defined. The transfer function includes the **loading** of the defined file at the receiving location.

In addition to the above information, you may need to enter a 'RELATED JCL ID'. JCL-IDs are used to supply JCL parameters (defaults) and JCL to build job control statements of the job that loads the file at the other node. When sending a file to an OS/390 system, you **must** enter a JCL-ID in order to supply a valid OS/390 JOB statement.

As mentioned above, JCL-IDs are defined in section SP3 of the network definition skeleton SKDTRNET. To see which JCL-ID can be used for the specified node, enter a '?' in the field.

The system does not store the file transfer job in a VSE/ICCF member. Instead, once you press PF6, it begins processing the job. Part of the job stream is the file itself which was **copied** from the origin VSAM space.

Cross-Domain Operating

After using the dialog for transferring a file, check the LST queue for an entry named IESXFILE. It will show whether the file was **copied** successfully. Then check the operator console log to see if the file was **sent**. Later you receive a listing from the other system. This listing shows if the file was **loaded** successfully. The listing is also named IESXFILE (unless you submitted the job to an OS/390 system, in which case the listing would have a name based on the JCL-ID).

In summary, the entire transfer consists of three parts:

1. Preparing for transfer: a job runs at the local system which builds a job to be run at the destination node. Part of this job is the file to be transferred.
2. Sending the job via VSE/POWER's XMT queue to the destination node.
3. Running the job at the destination node whereby the file is loaded into VSAM space.

Access Control Considerations:

Security considerations may arise for both the sending system (the 'LOCAL' system, where you are working right now) and the target system, depending on whether security is active at one or both systems.

Assuming security is active at the sending system (the 'LOCAL' system), you may override the default values of 'LOCAL VSE USER ID' and 'PASSWORD' (please refer also to the following figure). Defaults are **your** user ID and password. You may specify a different user ID and password, for example of a person who has special access rights to the VSAM file.

Concerning the target system (assumed to have security active), you must distinguish between a (1) VSE/ESA 1.3 system (or higher) and (2) a *backlevel system*: VSE/ESA prior to Version 1.3 or VSE/SP.

(1) VSE/ESA 1.3: if this system belongs to another *security zone* (VSE/POWER), you must supply the proper user ID and password.

(2) Backlevel system: the dialog prompts you to supply user ID and password. From this, it will include an ID statement in the job that loads the VSAM file at the target system.


```

IESEFT1                                FILE TRANSFER

To transfer a file, type the required data and press PF6.

TO NODE ID..... _____
VM USER ID..... _____ (for CMS users only)
RELATED JCL ID..... _____

FROM VSAM FILE..... _____
FROM USER CATALOG... _____
TO VSAM FILE..... _____
TO USER CATALOG... _____

or

FROM ICCF MEMBER.... _____ LIBRARY NUMBER..... _____

LOCAL VSE USER ID.... _____ PASSWORD.....
REMOTE VSE USER ID.... _____ PASSWORD.....
REMOTE OS/390 USER ID. _____ PASSWORD..... (for RACF)

PF1=HELP          3=END          4=RETURN          6=TRANSFER

```

Figure 108. File Transfer Panel

Transferring VSE/ICCF Members

Use the VSE/ESA-provided dialogs. Starting with the *VSE/ESA Function Selection* panel, select:

- 3 (Operations)
- 9 (Transfer Files and Jobs to Another System)
- 1 (Transfer Files to Another System)

```

┌────────────────────────────────┐ ┌────────────────────────────────┐
└─ Administrator ─┘ └─ 391 ─┘ └─ Synonym ─┘ └─ Yours: ─┘
└─ Fast Path: ─┘ └─ Default: ─┘
┌────────────────────────────────┐ ┌────────────────────────────────┐

```

For the following discussion, use Figure 108 as an illustration.

To **send** a VSE/ICCF member to another system, you need:

- PNET Node ID of the receiving system
- Member name
- Library number.

The member name is the same for the sending and the receiving systems.

In addition to the above, you may need to enter a

- JCL-ID

JCL-IDs are used to supply the job control statements of the job that transfers the VSE/ICCF member into its target repository. When sending a VSE/ICCF member to an OS/390 system, you **must** enter a JCL-ID in order to supply the OS/390 JOB statement, but JCL parameters (defaults) cannot be given.

Cross-Domain Operating

As mentioned above, JCL-IDs are defined in the network definition skeleton SKDTRNET. To see which JCL-ID can be used for the specified node, enter a '?' in the field.

- VM user ID

When sending a VSE/ICCF member to a CMS user, you must enter a user ID that is valid at the destination VM system.

Please note that this entry applies only if you send the member to a CMS user. If you simply transfer the member to a VSE system that runs under VM, do not concern yourself with the VM user ID of that VSE guest. The transfer takes place on a path from PNET node to PNET node via the XMT queue.

Access Control Considerations:

Security considerations arise only at the sending system (the 'LOCAL' system, where you are working right now). For the target system, any security specifications will be ignored because the object to be transferred will end up in the VSE/POWER punch queue.

Assuming security is active at the sending system (the 'LOCAL' system), you may override the default values of 'LOCAL VSE USER ID' and 'PASSWORD' (please refer also to the above figure).

When you have made your entries in the dialog, press PF6. The dialog runs a job which places the VSE/ICCF member into the XMT queue (the jobname is identical to the member name). The VSE/ICCF member then is transmitted in 80-byte records. At the target system, the member appears like this:

- VSE system: in the punch queue under its member name. The member can be brought into the VSE/ICCF library via the *Manage Batch Queues* (fast path 32) dialog.
- CMS user: as a file in the CMS user's reader queue, the file name identical to the member name.
- OS/390 systems: VSE/ESA creates a sequential file and the following DD statement for the output file:

```
//SYSUT2 DD DSN=filename,  
// UNIT=SYSDA,SPACE=(2000,(40,40),RLSE),DISP=(NEW,CATLG),  
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=2000)
```

The default for 'filename' is a system-generated name with the form:

VSEICCF.IDxxxx.Dyymmdd.Thhmss

where

IDxxxx = network node ID of the sending VSE/ESA system
(first four characters)

Dymmdd = date (month/day/year)

Thhmss = time (hour/minute/second)

If you do not want to accept this default, enter an ID of your own choice into line TO VSAM FILE on the panel.

Retrieving VSE/VSAM Files

Use the VSE/ESA-provided dialogs. Starting with the *VSE/ESA Function Selection* panel, select:

- 3 (Operations)
- 9 (Transfer Files and Jobs to Another System)
- 2 (Retrieve Files from Another System)

```

|+-----+|+-----+|
| 1/8 Administrator  | 1/8 1/8 Synonym      | 1/8
| 1/8 Fast Path: 392 | 1/8 1/8 Default: ____ Yours: | 1/8
|+-----+|+-----+|

```

For the following discussion, use Figure 109 on page 218 as an illustration.

To get a copy of a VSE/VSAM file from another system, you need:

- PNET node ID of the system that has the file.
- ID of the file at the other system and name of the user catalog, if it is not in the master catalog.
- ID of your file to receive the copy and name of the catalog if it is not the master catalog.

Both of these files must already be **defined**. Retrieving a file only **loads** it into the file identified in the TO VSAM FILE field.

If you do not fill in that field, VSE/ESA tries to load the copy into a file with the ID of the FROM VSAM FILE field.

In addition, you may need to enter a 'RELATED JCL ID' to supply JCL parameters (defaults) and JCL statements. This ID is required to retrieve a file from an OS/390 system in order to supply an OS/390 JOB statement. It may also be used when retrieving a file from a VSE/ESA system.

Access Control Considerations:

Security considerations may arise for both the receiving system (the 'LOCAL' system, where you are working right now) and the remote system, depending on whether security is active at one or both systems.

Concerning the remote system (assumed to have security active), you must distinguish between a (1) VSE/ESA 1.3 (or higher) system and (2) a *backlevel system*: VSE/ESA prior to Version 1.3 or VSE/SP.

(1) VSE/ESA 1.3: if this system belongs to another *security zone*, you must supply the proper user ID and password.

(2) Backlevel system: the dialog prompts you to supply user ID and password. From this, it will include an ID statement in the job that retrieves the VSAM file at the remote system.

Assuming security is active at the receiving system (the 'LOCAL' system), you may override the default values of 'LOCAL VSE USER ID' and 'PASSWORD' (please refer also to the figure below). Defaults are **your** user ID and password. It is **necessary** to supply a local user ID and password if the remote system is

Cross-Domain Operating

backlevel or a VSE/ESA 1.3 (or higher) system belonging to a different security zone.

After you submit the job for processing, three listings give you status information:

- The first is produced when VSE/ESA builds the jobstream and sends it to the system specified in 'FROM NODE-ID'.
- The second is sent from the other system. It shows whether the copy of the file was produced.
- The third listing tells you whether the copy was loaded successfully at your system.

Unless you send the job to an OS/390 system, all of these listings will have the name IESXFILE in the VSE/POWER LST queue. Display or print these listings to check whether the retrieve function executed successfully.

IESEFT2		FILE RETRIEVE	
To retrieve a file, type the required data and press PF6.			
FROM NODE ID.....		_____	
RELATED JCL ID.....		_____	
FROM VSAM FILE.....		_____	
FROM USER CATALOG...		_____	
TO VSAM FILE.....		_____	
TO USER CATALOG...		_____	
or			
FROM ICCF MEMBER....		LIBRARY NUMBER.....	
LOCAL VSE USER ID....		PASSWORD.....	
REMOTE VSE USER ID....		PASSWORD.....	
REMOTE OS/390 USER ID.		PASSWORD..... (for RACF)	
PF1=HELP	3=END	4=RETURN	6=RETRIEVE

Figure 109. File Retrieve Panel

Retrieving VSE/ICCF Members

To process VSE/ICCF members received from other systems, use the VSE/ESA-provided dialog. Starting with the *VSE/ESA Function Selection* panel, select:

- 3 (Operations)
- 9 (Transfer Files and Jobs to Another System)
- 2 (Retrieve Files from Another System)

[+++++]		[+++++]	
1/8 Administrator	1/8	1/8 Synonym	1/8
1/8 Fast Path: 392	1/8	1/8 Default: _____	1/8 Yours: _____
[+++++]		[+++++]	

For the following discussion, use Figure 109 as an illustration.

To get a copy of a VSE/ICCF member from another location, you need:

- PNET node ID of the system that has the member

- Member name at that location
- Library number.

Enter a 'RELATED JCL ID' if you had prepared JCL statements under that JCL-ID. Note that JCL parameters (defaults) could not have been coded under the JCL-ID.

The dialog processes a job which builds a job to be run at the other system to prepare the VSE/ICCF member for transmission. After the VSE/ICCF member has been transmitted to your system, you will have two listings in your list queue, with both jobnames identical to the member name:

The dialog job

The prepare-for-transmitting job that ran at the other system.

To get data from an **OS/390 system** and put it into a VSE/ICCF library member, personnel at the OS/390 system must send punch output to your system via JES networking.

After the member has been transmitted, it is held in your system's punch queue. It can be brought into the VSE/ICCF library via the *Manage Batch Queues* dialog (fast path 32).

Appendix A. Naming Convention

The dialogs assign VSE/ESA resource names according to some naming convention.

Part of the resource name is the **subarea number**. This scheme preserves the **uniqueness of resource names**, even in multi-domain networks.

The naming convention comes in two groups, distinguished by the length of the subarea number, and consequently by the maximum size of the subarea number.

1. Two-digit subarea number

This naming convention accommodates a maximum of 255 subareas.

Prior to VSE/SP Version 4, this was the only available naming convention. It is sometimes called *old naming convention*.

2. Four-digit subarea number

This naming convention accommodates more than 255 subareas. It is a prerequisite for *extended subarea addressing*, and you are *strongly recommended* to use this naming convention.

If you migrate your hardware and terminal definitions from an earlier VSE system, you have to stick with the naming convention that you previously used (you cannot change naming conventions during the migration). If you **do not migrate**, you can make a selection: after Initial Installation of your VSE/ESA, the dialog asks you to indicate whether your VTAM resource names are to follow the old naming convention or the one which carries a four-digit subarea number. *Choose the four-digit subarea number option.*

2-Digit Subarea Naming Convention

Figure 110 on page 222 shows the *old naming convention* (for migration purposes only).

Naming Convention

	Local non-SNA	Local SNA	ICA or NCP		X.25		OSA-2 or 3172 (see Note 1)	Token-Ring	
			Leased	Switched	PVC	SVC		ICA	NTRI
LBUILD	VTMNSNA								
VBUILD		VTMSNA	VTMCA1	VTMCA3 VTMSW1 ncpnameV	PORcuusa	PORcuusa	Ycuusa	TLNcsa TSWcsa	ncpnameM . . T
Port							Ucuusa	TRPcsa	
Group			GRPLSDLC GsaSDLC	GRPSSDLC GsaDIAL	GLcuusa	GScuusa	Qcuusa	TRGcsa	TGlnsa (physical) THlnsa (logical)
Line			LNKcuusa	LNKcuusa	PVCnnnsa	SVCnnnsa	Mcuusa (see Note 2)	Lcnnnsa	TIlnsa
PU		DPACuusa ↓ ↓	DPIaaasa ISI ↓ ↓	DPSnnnsa IS ↓ ↓	DPPnnnsa IS ↓ ↓	DPXnnnsa IS ↓ ↓	Jnnnsa ↓	DPTnnnsa IS ↓ ↓	TLlnsa (NCP) DPSnnnsa (VTAM) ISSnnnsa (VTAM)
LU	Dcuusa Pcuusa	Alacuusa ↓ ↓	Ilaaaasa ↓ ↓	Slannnsa ↓ ↓	Plannnsa ↓ ↓	Xlannnsa ↓ ↓	Rnnnsa ↓	Tlannnsa ↓ ↓	TLlnsa (NCP) Slannnsa (VTAM)
CICS termID	Dcuu Pcuu	Snnn	Rnnn Nnnn	Rnnn Nnnn	Rnnn	Rnnn	Rnnn	Rnnn	Nnnn
LEGEND: Capital letters are constants, small letters represent variables. aaa = 3-character alphanumeric string c = channel number cuu = for OSA or 3172: channel unit address of the LAN (see Note 1 below) for ICA: channel unit address for NCP: address of line at controller for local: channel unit address la = local address ln = last two digits of TIC relative line number sa = host subarea number (default 01 in a single-domain environment) or NCP subarea number; two hexadecimal digits nnn = 000 - 999 IS = Intelligent System First letter of CICS termID: D = Display P = Printer R = ICA-, OSA-, or 3172-attached N = NCP-attached S = local SNA Note 1: The channel unit address of the LAN is: For OSA - the cuu of the OSA ADD statement For 3172 - the value entered on panel COM\$ADDR Note 2: The TYPE=XCA definition contains a PU statement with dummy PU Fnnnsa									

Figure 110. 2-Digit Subarea Resource Naming Convention

Here are some examples, for resources in subarea 04:

```
LNK02004 LINE ADDRESS=020, for line 020 attached to a
                                communication controller (NCP)
DPA02004 PU   ADDR=C1,      for the control unit
A0202004 LU   LOCADDR=2,    for the display station
                                (local address 02)
A0302004 LU   LOCADDR=3,    for the display station
                                (local address 03)
```

Some Special Rules:

1. In contrast to the above naming convention, the CICS termID of an **autoinstall** terminal starts with an 'A'.
2. Some VTAM books have PU statements that serve as a placeholder and do not correspond to any device you defined. Under the old naming convention, their names start with PU (instead of IS or DP). An example of such a book is VTMSW1 - the switched line definition.
3. PU names of type WSxcuusa may still exist if you passed (*migrated*) these names from an older VSE/SP version into your current system. New names of this type, however, will no longer be generated.

Naming Convention

4-Digit Subarea Naming Convention

Figure 111 shows the 4-digit subarea naming convention.

	Local non-SNA	Local SNA	ICA or NCP		X.25		OSA-2 or 3172 (see Note 1)	Token-Ring	
			Leased	Switched	PVC	SVC		ICA	NTRI
LBUILD	VTMNSNA								
VBUILD		VTMSNA	VTMCA1	VTMCA3 VTMSW1 ncpnameV	Ocuusuba	Ocuusuba	Ycuusuba	TLNcsuba TSWcsuba	ncpnameM N ... T
Port							Ucuusuba	TRPcsuba	
Group			GICAsuba GNCPsuba	HICAsuba HNCPsuba	Gcuusuba	Hcuusuba	Qcuusuba	TRGcsuba	TGInsuba (physical) THInsuba (logical)
Line			Lcuusuba	Lcuusuba	Vnnnsuba	Vnnnsuba	Mcuusuba (see Note 2)	Kaaasuba	TIInsuba
PU		Acuusuba	Caaasuba	Caaasuba	Xhhhsuba	Xnnnsuba	Jnnnsuba	Tnnnsuba	TPInsuba (NCP) Caaasuba (VTAM)
LU	Dcuusuba Pcuusuba ↑	Snnnsuba ↑	Rnnnsuba Nnnnsuba ↑	Rnnnsuba Nnnnsuba ↑	Rnnnsuba ↑	Rnnnsuba ↑	Rnnnsuba ↑	Rnnnsuba ↑	TLInsuba (NCP) Nnnnsuba (VTAM) ↑
CICS termID	Dcuu Pcuu	Snnn	Rnnn Nnnn	Rnnn Nnnn	Rnnn	Rnnn	Rnnn	Rnnn	Nnnn

LEGEND: Capital letters are constants, small letters represent variables.

c = channel number

cuu = for OSA or 3172: channel unit address of the LAN (see Note 1 below)
for ICA: channel unit address
for NCP: address of line at controller
for local: channel unit address

ln = last two digits of TIC relative line number

suba = host or NCP subarea number; four hexadecimal digits

nnn = 000 - 999

hhh = 3-digit hexadecimal number from A00 to FFF

aaa = 3-character alphanumeric string

First letter of CICS termID: D = Display
P = Printer
R = ICA-, OSA-, or 3172-attached
N = NCP-attached
S = local SNA

Note 1: The channel unit address of the LAN is:
For OSA - the cuu of the OSA ADD statement
For 3172 - the value entered on panel COM\$ADDR

Note 2: The TYPE=XCA definition contains a PU statement with dummy PU Fnnnsuba

Figure 111. 4-Digit Subarea Resource Naming Convention

Some Special Rules:

1. In contrast to the above naming convention, the CICS termID of an **autoinstall** terminal starts with an 'A'.
2. For the purpose of *automatic customization* in an unattended node environment, a cross-domain application name and a cross-domain resource name to be customized **must** be of the form:

ysubaaaa

where

'y' in Pos.1 is any alphabetic character, preferably 'M'

'suba' in Pos.2-5 is the subarea number as four hexadecimal digits

'aaa' in Pos.6-8 is any alphanumeric character combination.

3. Some VTAM books have PU statements that serve as a placeholder and do not correspond to any device you defined. Under the 4-digit subarea naming convention, their names start with 'Z'. An example of such a book is VTMSW1 - the switched line definition.

Naming Convention

Appendix B. Job Skeletons

VSE/POWER Generation Skeleton SKPWRGEN

```

* $$ JOB JNM=POWERGEN,CLASS=0,DISP=D
* $$ LST CLASS=Q
// JOB POWER GENERATION
LIBDEF PHASE,CATALOG=PRD2.CONFIG
// OPTION CATAL
// EXEC ASMA90,SIZE=(ASMA90,64K),PARM='EXIT(LIBEXIT(EDECKXIT)),SIZE(MAXC
-200K,ABOVE)'
PWR      TITLE 'VSE/POWER - IPWPOWER GENERATION '
EJECT

***** C
*                                           * C
*   V S E / P O W E R   G E N E R A T I O N   S K E L E T O N           * C
*                                           * C
*   THE FOLLOWING GENERATION SKELETON SHOWS THE COMPLETE VSE/POWER      * C
*   GENERATION DECK WHICH HAS BEEN USED TO GENERATE THE PHASE           * C
*   IPWPOWER.                                                            * C
*   IF ANY CHANGES ARE MADE TO THIS GENERATION DECK IT IS RECOMMENDED * C
*   THAT ANOTHER PHASE NAME IS USED INSTEAD OF IPWPOWER BECAUSE THIS   * C
*   PHASE WILL BE SERVICED TOGETHER WITH THE VSE/POWER PRODUCT.         * C
*                                           * C
*   --V100--    NAME OF VSE/POWER LOAD PHASE                             * C
*                                           * C
*   NOTE: IF THE PHASE NAME CHANGES THE PARTITION STARTUP HAS TO      * C
*   CHANGE.                                                         * C
***** C
*   INSERT THE FOLLOWING PARAMETER IN THIS VSE/POWER GENERATION DECK * C
*   IF POWER SHOULD USE THE SPECIFIED PASSWORD AS MASTER PASSWORD.      * C
*                                           * C
*   --V200--    IS THE MASTER PASSWORD                                  * C
*                                           * C
*               MPWD=--V200--,      CONTINUATION CHARACTER ==> *      * C
***** C
*   INSERT THE FOLLOWING PARAMETER IN THIS VSE/POWER GENERATION DECK * C
*   IF YOU WANT TO ACTIVATE PNET ON YOUR SYSTEM.                        * C
*                                           * C
*   --V101--    IS THE NAME OF THE PNET PHASE. (LABEL ON 'PNODE' MACRO * C
*               WITH 'LOCAL=YES')                                       * C
*                                           * C
*               PNET=--V101--,      CONTINUATION CHARACTER ==> *      * C
*                                           * C
***** C
*   INSERT THE FOLLOWING PARAMETER IN THIS VSE/POWER GENERATION DECK * C
*   IF SNA WORKSTATIONS ARE ATTACHED TO THE SYSTEM.                     * C
*                                           * C
*               SNA=YES,          CONTINUATION CHARACTER ==> *      * C
***** C

```

Figure 112 (Part 1 of 3). VSE/POWER Generation Skeleton SKPWRGEN

Skeleton SKPWGEN

```
* INSERT THE FOLLOWING PARAMETER(S) IN THIS VSE/POWER GENERATION DECK*
* IF YOU WANT TO USE USER WRITTEN EXIT ROUTINES.                                *
*                                                                              *
* --V102-- IS THE NAME OF THE USER WRITTEN JOB EXIT ROUTINE                    *
* --V103-- IS THE NUMBER OF BYTES RESERVED AS WORKAREA                        *
* --V104-- IS THE NAME OF THE USER WRITTEN PNET EXIT ROUTINE                  *
* --V105-- IS THE NUMBER OF BYTES RESERVED AS WORKAREA                        *
* --V106-- IS THE NAME OF THE USER WRITTEN OUTPUT EXIT ROUTINE                *
* --V107-- IS THE NUMBER OF BYTES RESERVED AS WORKAREA                        *
* --V108-- IS THE NAME OF THE USER WRITTEN TRANSMIT EXIT ROUTINE              *
* --V109-- IS THE NUMBER OF BYTES RESERVED AS WORKAREA                        *
*                                                                              *
*          JOBEXIT=--V102--,      OR      CONTINUATION CHARACTER ==> *
*          JOBEXIT=(--V102--,--V103--),                                     ==> *
*                                                                              *
*          NETEXIT=--V104--,      OR      CONTINUATION CHARACTER ==> *
*          NETEXIT=(--V104--,--V105--),                                     ==> *
*                                                                              *
*          OUTEXIT=--V106--,      OR      CONTINUATION CHARACTER ==> *
*          OUTEXIT=(--V106--,--V107--),                                     ==> *
*                                                                              *
*          XMTEXIT=--V108--,      OR      CONTINUATION CHARACTER ==> *
*          XMTEXIT=(--V108--,--V109--),                                     ==> *
*                                                                              *
*****
      PRINT NOGEN
      SPACE 3
--V100-- POWER
      ACCOUNT=YES,
      CLRPRT=YES,
      COPYSEP=YES,
      DBLKGP=8,
      DBLK=0,
      FEED=NO,
      JLOG=YES,
      JSEP=(0,0),
      LTAB=(10,00,05,10,15,20,25,30,35,40,45,50,56),
      MEMTYPE=P,
      MRKFRM=YES,
      MULT12=NO,
      NTFYMSG=100,
      PAUSE=NO,
      PRI=3,
      RBS=(0,0),
      SECNODE=AAAA,
      SHARED=NO,
      STDCARD=(0,0),
      STDLINE=(0,0),
      SPLIM=90,
      SPOOL=YES
      EJECT
```

Figure 112 (Part 2 of 3). VSE/POWER Generation Skeleton SKPWGEN

```
***** C
* C
* INCLUDE THE MEMBER 'SKPWRBSC' AT THIS PLACE TO GET THE VSE/POWER * C
* RJE DEFINITIONS FOR BSC WORKSTATIONS. THE MEMBER HAS TO BE * C
* FILLED IN BEFORE THIS JOB CAN BE EXECUTED. * C
* * C
* REMOVE THE * IN FRONT OF THE /INCLUDE STATEMENT IF THE MEMBER * C
* HAS TO BE INCLUDED. * C
* * C
***** C
* C
*/INCLUDE SKPWRBSC
* C
***** C
* C
* INCLUDE THE MEMBER 'SKPWRSNA' AT THIS PLACE TO GET THE VSE/POWER * C
* RJE DEFINITIONS FOR SNA WORKSTATIONS. THE MEMBER CONTAINS A PRE- * C
* DEFINED SET OF SNA WORKSTATIONS WHICH CAN BE CONFIGURED WITH THE * C
* REMOTE CONFIGURATION DIALOG. * C
* THE DIALOG GENERATES THE REQUIRED VTAM LINE, PU AND LU * C
* DEFINITIONS. * C
* * C
* TO GET THE CONNECTION BETWEEN VSE/POWER AND VTAM THE VTAM APPLID * C
* 'POWER' IS PROVIDED IN THE VTAM APPLICATION STARTUP BOOK. * C
* THE SAME APPLID IS USED WHEN THE 'SNA=YES' PARAMETER IS * C
* SPECIFIED IN THE POWER MACRO DESCRIBED ABOVE. * C
* * C
* REMOVE THE * IN FRONT OF THE /INCLUDE STATEMENT IF THE MEMBER * C
* HAS TO BE INCLUDED. * C
* * C
***** C
* C
*/INCLUDE SKPWRSNA
* C
C
C
C
AFTER YOU HAVE MODIFIED THE SKELETON ENTER '@DTRSEXIT'
FROM THE EDITOR'S COMMAND LINE.
THIS MACRO WILL DELETE ALL DESCRIPTIVE TEXT FROM THIS FILE,
BY DELETING ALL LINES WHICH ARE MARKED WITH THE CHARACTER C
IN COLUMN 71.
C
C
END
/*
// EXEC LNKEDT,PARM='MSHP'
/&
* $$ EQJ
```

Figure 112 (Part 3 of 3). VSE/POWER Generation Skeleton SKPWRGEN

VSE/POWER SNA Skeleton SKPWSNA

```

*****
*                                                                 *
*  V S E / P O W E R  DEFINITION FOR  S D L C  WORKSTATIONS WHICH *
*                                                                 *
*                        CAN BE CONFIGURED WITH THE               *
*                                                                 *
*                        REMOTE CONFIGURATION DIALOG              *
*                                                                 *
*                                                                 *
*                        PLEASE DO NOT CHANGE THIS MEMBER.       *
*                                                                 *
*****
      PRMT  REMOTE=21,                                           *
            TYPE=LUT1,                                           *
            CONSOLE=NO,                                          *
            SESSLIM=1
      PRMT  REMOTE=22,                                           *
            TYPE=LUT1,                                           *
            CONSOLE=NO,                                          *
            SESSLIM=1
      PRMT  REMOTE=23,                                           *
            TYPE=LUT1,                                           *
            CONSOLE=NO,                                          *
            SESSLIM=1
      PRMT  REMOTE=24,                                           *
            TYPE=LUT1,                                           *
            CONSOLE=NO,                                          *
            SESSLIM=1
      PRMT  REMOTE=25,                                           *
            TYPE=LUT1,                                           *
            CONSOLE=NO,                                          *
            SESSLIM=1
      PRMT  REMOTE=26,                                           *
            TYPE=LUT1,                                           *
            CONSOLE=NO,                                          *
            SESSLIM=1
      PRMT  REMOTE=27,                                           *
            TYPE=LUT1,                                           *
            CONSOLE=NO,                                          *
            SESSLIM=1
      PRMT  REMOTE=28,                                           *
            TYPE=LUT1,                                           *
            CONSOLE=NO,                                          *
            SESSLIM=1

```

Figure 113 (Part 1 of 2). VSE/POWER SDLC Workstation Definition Skeleton SKPWSNA

PRMT	REMOTE=31,	*
	TYPE=LUT1,	*
	CONSOLE=NO,	*
	SESSLIM=1	
PRMT	REMOTE=32,	*
	TYPE=LUT1,	*
	CONSOLE=NO,	*
	SESSLIM=1	
PRMT	REMOTE=33,	*
	TYPE=LUT1,	*
	CONSOLE=NO,	*
	SESSLIM=1	
PRMT	REMOTE=34,	*
	TYPE=LUT1,	*
	CONSOLE=NO,	*
	SESSLIM=1	
PRMT	REMOTE=35,	*
	TYPE=LUT1,	*
	CONSOLE=NO,	*
	SESSLIM=1	
PRMT	REMOTE=36,	*
	TYPE=LUT1,	*
	CONSOLE=NO,	*
	SESSLIM=1	
PRMT	REMOTE=37,	*
	TYPE=LUT1,	*
	CONSOLE=NO,	*
	SESSLIM=1	
PRMT	REMOTE=38,	*
	TYPE=LUT1,	*
	CONSOLE=NO,	*
	SESSLIM=1	

Figure 113 (Part 2 of 2). VSE/POWER SDLC Workstation Definition Skeleton SKPWRSNA

VSE/POWER BSC Skeleton SKPWRBSC

```

***** C
*                                           * C
*   V S E / P O W E R   SKELETON FOR   B S C   LINES AND WORKSTATIONS * C
*                                           * C
***** C
      SPACE
***** C
*   P L I N E                                           C
*                                           C
*           IN THE FOLLOWING DEFINITION YOU SEE ALL PARAMETERS WITH C
*           THEIR DEFAULT VALUES. A VARIABLE (--V###--) INDICATES C
*           THAT THERE IS NO DEFAULT VALUE FOR THIS PARAMETER.    C
*                                           C
*   --V101-- THREE DIGIT HEXADECIMAL ADDRESS OF BSC LINE. E.G. X'030' C
*   --V102-- EIGHT CHARACTER PASSWORD WHICH HAS TO BE SPECIFIED WHEN C
*           THE REMOTE TERMINAL IS TO BE CONNECTED TO THE SYSTEM. C
*           REPLACE THE --V102-- BY A PASSWORD OR DELETE THE LINE. C
*                                           C
*           PLINE ADDR=X'--V101--',
*                   CODE=EBCDIC,
*                   MODSET=AA,
*                   PSWRD=--V102--,
*                   SWITCH=NO,
*                   TIMEOUT=NO,
*                   TRNSP=YES
*                                           C
***** C
      SPACE
***** C
*   P R M T                                           C
*                                           C
*           IN THE FOLLOWING DEFINITION YOU SEE ALL PARAMETERS WITH C
*           THEIR DEFAULT VALUES. A VARIABLE (--V###--) INDICATES C
*           THAT THERE IS NO DEFAULT VALUE FOR THIS PARAMETER.    C
*                                           C
*   --V201-- SPECIFIES WHERE THE LIST OUTPUT FROM JOBS SUBMITTED BY C
*           THIS REMOTE-ID IS TO BE ROUTED BY DEFAULT.            C
*   --V202-- SPECIFIES WHERE THE PUNCH OUTPUT FROM JOBS SUBMITTED BY C
*           THIS REMOTE-ID IS TO BE ROUTED BY DEFAULT.            C
*   --V203-- REMOTE IDENTIFIER, VARIES FROM 1 TO 20.                C
*   --V204-- SPECIFIES THE TYPE OF TERMINAL, WHICH MAY BE A 2770, C
*           2780, 3741 OR 3780. FOR 3770 SPECIFY 2770 OR 3780 C
*           DEPENDING ON THE BUFFER SIZE.                          C
*                                           C
*                                           C

```

Figure 114 (Part 1 of 2). VSE/POWER BSC Definition Skeleton SKPWRBSC

```

AFTER YOU HAVE MODIFIED THE SKELETON ENTER '@DTRSEXIT'
FROM THE EDITOR'S COMMAND LINE.
THIS MACRO WILL DELETE ALL DESCRIPTIVE TEXT FROM THIS FILE,
BY DELETING ALL LINES WHICH ARE MARKED WITH THE CHARACTER C
IN COLUMN 71.

PRMT  CS=NO,
      CSALST=0,
      CSAMSG=0,
      CSAPUN=0,
      HFC=NO,
      LIST=120,
      LSTROUT=--V201--,
      MRF=NO,
      MSG=120,
      MSGEJCT=YES,
      MSGSPCE=YES,
      PUN=80,
      PUNROUT=--V202--,
      REMOTE=--V203--,
      SCE=NO,
      TRNSP=NO,
      TURNEOJ=YES,
      TYPE=--V204--

*
*****

```

Figure 114 (Part 2 of 2). VSE/POWER BSC Definition Skeleton SKPWRBSC

VSE/POWER Startup Procedure Skeleton SKPWSTRT

```

CATALOG POWSTRTN.PROC      REPL=YES  DATA=YES
* CHANGE THE N IN THE PROCEDURE NAME TO YOUR ENVIRONMENT NUMBER.      * C
*                                                                    * C
*   DELETE THE PARTITIONS YOU DO NOT WANT TO HAVE AUTOSTARTED          * C
*   DO THIS FOR BOTH THE COLD AND THE WARM START.                      * C
*   ENVIRONMENT C SHOULD NOT START F3, F4 AND F5.                      * C
*   PARTITION FB IS IMPLEMENTED AS THE DEFAULT SECURITY SERVER          * C
*   PARTITION. IF ANOTHER PARTITION IS SELECTED, CHANGE THE            * C
*   LOGIC AND DO NOT AUTO START THE SERVER PARTITION.                  * C
*                                                                    * C
*   CONSIDER THAT THE FIRST PRINTER SPECIFIED IS USED AS DEFAULT.       * C
*   THEREFORE LET YOUR REAL PRINTER PRECEDE THE DUMMY PRINTER FEE.     * C
*   SYSID AND PNET ARE OPTIONAL FOR SHARED SPOOLING AND NETWORKING      * C
*   SECNODE IS OPTIONAL TO SPECIFY THE SECURITY ZONE NAME               * C
*   SJECL IS OPTIONAL TO ACTIVATE JECL SUBSTITUTION                    * C
*                                                                    * C
*   ADD A STATEMENT 'SET WORKUNIT=PA' BEFORE THE NEXT STATEMENT        * C
*   IN CASE YOU WANT TO ACTIVATE PARALLEL POWER.                      * C
*   DEFINE L,CICSDATA  COMMAND FOR THE CICS REPORT CONTROLLER;          * C
*                       TO BE ABLE TO SPECIFY A CICS RSL (RESOURCE       * C
*                       SECURITY LEVEL) VALUE FOR A REPORT WHICH IS      * C
*                       GENERATED BY A BATCH PROGRAM.                  * C
*                                                                    * C
*                       USER DEFINED PARAMETER FOR PSF                 * C
*   DEFINE L,CKPTPAGE  PAGES TO BE PRINTED BEFORE A CHECKPOINT          * C
*   DEFINE L,FORMDEF   NAME OF THE FORM DEFINITION                     * C
*   DEFINE L,PAGEDEF   NAME OF THE PAGE DEFINITION                     * C
*   DEFINE L,PIMSG     MESSAGES TO BE PRINTED ON SUMMARY SHEETS         * C
*   DEFINE L,DATAACK   DATA-CHECK ERRORS BLOCKED OR UNBLOCKED          * C
*   DEFINE L,FORMS     SPECIAL FORMS ON CONTINUOUS-FORMS PRINTER        * C
*   DEFINE L,PRMODE    EMBEDDED EBCDIC SHIFT-OUT, SHIFT-IN CONTROLS     * C
*   DEFINE L,TRC       EMBEDDED FONT TABLE REFERENCE CHARACTERS       * C
*                                                                    * C
*   PSTART DEV         PSTART COMMAND TO START PSF PRINTER             * C
*                                                                    * C
*   PSTART TASKTR,ENAB RECORDS THE TASK STATUS WHENEVER A TASK         * C
*                       IS DISPATCHED, USING THE INTERNAL TRACE AREA    * C
*                                                                    * C
*   DELETE THE STATEMENTS YOU DO NOT NEED FOR YOUR ENVIRONMENT         * C
*                                                                    * C
*   PLOAD DYNC,ID=N    LOADS ,CHECKS AND PASSES MEMBER DTR$DYNN TO      * C
*                       SUPERVISOR AS ACTIVE DYNAMIC CLASS TABLE       * C
*                       WITH ALL CLASSES ENABLED.                      * C
*                       VALID FOR 370- AND ESA- MODE                   * C
*                                                                    * C
*   AFTER YOU HAVE MODIFIED THE SKELETON ENTER '@DTRSEXIT'            * C
*   FROM THE EDITOR'S COMMAND LINE.                                    * C
*   THIS MACRO WILL DELETE ALL DESCRIPTIVE TEXT FROM THIS FILE,        * C
*   BY DELETING ALL LINES WHICH ARE MARKED WITH THE CHARACTER C       * C
*   IN COLUMN 71.                                                    * C

```

Figure 115 (Part 1 of 7). Skeleton SKPWSTRT (VSE/POWER Warm and Cold Starts)

```

*                                                    * C
// EXEC DTRWAITP
// IF XPWMODE ^= COLD THEN
// GOTO WARM
// IF XSECP = FB THEN
// GOTO COLDFB
// ASSGN SYSLST,UA
// EXEC IPWPOWER,DSPACE=2M
SET SYSID=Y
SET PNET=YYYYYYYY
SET SECNODE=AAAA
SET SJECL=YES
DEFINE L,CICSDATA,3F00,1,255,*
DEFINE L,CKPTPAGE,4,1,2,B,1,32767
DEFINE L,FORMDEF,1D,1,6,C
DEFINE L,PAGEDEF,1F,1,6,C
DEFINE L,PIMSG,21,2,3,C
DEFINE L,DATAACK,2022,1,8,C
DEFINE L,FORMS,10,1,4,C
DEFINE L,PRMODE,18,1,8,C
DEFINE L,TRC,1A,1,3,C
FORMAT=D,A
PSTART BG,A0I
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F2,L2
READER=FEC
PRINTERS=FEE,FEF
PUNCHES=FED
PSTART F3,K3
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F4,J4
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F5,H5
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F6,M6
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F7,N7
READER=FEC
PRINTERS=FEE
PUNCHES=FED

```

Figure 115 (Part 2 of 7). Skeleton SKPWSTRT (VSE/POWER Warm and Cold Starts)

VSE/POWER Startup Procedure SKPWRSTRT

```
PSTART F8,P8
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F9,R9
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART FA,S
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART FB,T
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART DEV,YYYYYYYY,SYSFXX,P
PSTART TASKTR,ENAB,10
* PLOAD DYNC,ID=N,FORCE
./ *
// GOTO EXIT
/. COLD FB          COLD START, SECURITY SERVER IS FB
// ASSGN SYSLST,UA
// EXEC IPWPOWER,DSPACE=2M
SET SYSID=Y
SET PNET=YYYYYYYY
SET SECNODE=AAAA
SET SJECL=YES
DEFINE L,CICS DATA,3F00,1,255,*
DEFINE L,CKPT PAGE,4,1,2,B,1,32767
DEFINE L,FORMDEF,1D,1,6,C
DEFINE L,PAGEDEF,1F,1,6,C
DEFINE L,PIMSG,21,2,3,C
DEFINE L,DATA CK,2022,1,8,C
DEFINE L,FORMS,10,1,4,C
DEFINE L,PRMODE,18,1,8,C
DEFINE L,TRC,1A,1,3,C
FORMAT=D,A
PSTART BG,A0I
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F2,L2
READER=FEC
PRINTERS=FEE,FEF
PUNCHES=FED
PSTART F3,K3
READER=FEC
PRINTERS=FEE
PUNCHES=FED
```

Figure 115 (Part 3 of 7). Skeleton SKPWSTRT (VSE/POWER Warm and Cold Starts)

```

PSTART F4,J4
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F5,H5
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F6,M6
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F7,N7
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F8,P8
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F9,R9
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART FA,S
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART DEV,YYYYYYYY,SYSFXX,P
PSTART TASKTR,ENAB,10
* PLOAD DYNC,ID=N,FORCE
./ *
// GOTO EXIT
/. WARM                POWER WARM START
// IF XSECP = FB THEN
// GOTO WARMFB
// EXEC IPWPOWER,DSPACE=2M
SET SYSID=Y
SET PNET=YYYYYYYY
SET SJECL=YES
DEFINE L,CICSDATA,3F00,1,255,*
DEFINE L,CKPTPAGE,4,1,2,B,1,32767
DEFINE L,FORMDEF,1D,1,6,C
DEFINE L,PAGEDEF,1F,1,6,C
DEFINE L,PIMSG,21,2,3,C
DEFINE L,DATAACK,2022,1,8,C
DEFINE L,FORMS,10,1,4,C
DEFINE L,PRMODE,18,1,8,C
DEFINE L,TRC,1A,1,3,C

```

Figure 115 (Part 4 of 7). Skeleton SKPWSTRT (VSE/POWER Warm and Cold Starts)

VSE/POWER Startup Procedure SKPWRSTRT

```
FORMAT=NO
PSTART BG,A0I
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F2,L2
READER=FEC
PRINTERS=FEE,FEF
PUNCHES=FED
PSTART F3,K3
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F4,J4
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F5,H5
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F6,M6
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F7,N7
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F8,P8
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F9,R9
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART FA,S
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART FB,T
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART DEV,YYYYYYY,SYSFXX,P
PSTART TASKTR,ENAB,10
* PLOAD DYNC,ID=N,FORCE
```

Figure 115 (Part 5 of 7). Skeleton SKPWSTRT (VSE/POWER Warm and Cold Starts)

```

../*
// GOTO EXIT
/. WARMFB          WARM START, SECURITY SERVER IS FB
// EXEC IPWPOWER,DSPACE=2M
SET SYSID=Y
SET PNET=YYYYYYYY
SET SJECL=YES
DEFINE L,CICSDATA,3F00,1,255,*
DEFINE L,CKPTPAGE,4,1,2,B,1,32767
DEFINE L,FORMDEF,1D,1,6,C
DEFINE L,PAGEDEF,1F,1,6,C
DEFINE L,PIMSG,21,2,3,C
DEFINE L,DATAACK,2022,1,8,C
DEFINE L,FORMS,10,1,4,C
DEFINE L,PRMODE,18,1,8,C
DEFINE L,TRC,1A,1,3,C
FORMAT=NO
PSTART BG,A0I
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F2,L2
READER=FEC
PRINTERS=FEE,FEF
PUNCHES=FED
PSTART F3,K3
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F4,J4
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F5,H5
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F6,M6
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F7,N7
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART F8,P8
READER=FEC
PRINTERS=FEE
PUNCHES=FED

```

Figure 115 (Part 6 of 7). Skeleton SKPWSTRT (VSE/POWER Warm and Cold Starts)

VSE/POWER Startup Procedure SKPWRSTRT

```
PSTART F9,R9
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART FA,S
READER=FEC
PRINTERS=FEE
PUNCHES=FED
PSTART DEV,YYYYYYYY,SYSFEXX,P
PSTART TASKTR,ENAB,10
* PLOAD DYNC,ID=N,FORCE
../*
/. EXIT
/+
CONNECT S=IJSYSRS.SYSLIB:PRD2.SAVE
COPY POWSTRN.PROC      REPLACE=YES
```

Figure 115 (Part 7 of 7). Skeleton SKPWSTRT (VSE/POWER Warm and Cold Starts)

Note: This example uses FB as the Security Server partition.

Logon Mode Table Definition Skeleton SKVTMMOD

```

* $$ JOB JNM=MODETAB,CLASS=0,DISP=D
* $$ LST CLASS=Q,DISP=D
// JOB MODETAB      CREATE VTAM LOGON MODE TABLE
* ***** C
* * * * * C
* * - - - - - CREATE VTAM LOGON MODE TABLE - - - - - C
* * * * * C
* * THIS JOB IS FOR CREATING A LOGON MODE TABLE USED BY VTAM * C
* * TO HAVE ACCESS TO A SET OF SESSION PARAMETERS WHICH WILL * C
* * GOVERN AN LU-LU SESSION. * C
* * THE TABLE NAME --V001-- AND TABLE ENTRIES --V002-- CAN * C
* * BE SPECIFIED IN THE 'MODETAB' AND 'DLOGMOD' PARAMETERS * C
* * FOR AN LU. USE THE VTAM PARAMETER TABLES OF THE * C
* * 'HARDWARE CONFIGURATION' DIALOGS TO SELECT A LOGON MODE * C
* * ENTRY FOR THE TERMINAL CONCERNED. * C
* * * * * C
* * THE FOLLOWING VARIABLES ARE USED AND HAVE TO BE CHANGED * C
* * --V001-- LOGON MODE TABLE NAME * C
* * --V002-- NAME OF A SECOND TABLE ENTRY * C
* * --V003-- PARAMETER VALUES (SEE VTAM PUBLICATIONS FOR * C
* * SPECIFIC INFORMATION) * C
* * --V004-- COS (CLASS OF SERVICE) TABLE NAME * C
* ***** C
* * * * * C
// LIBDEF PHASE,CATALOG=PRD2.CONFIG
// OPTION CATAL
    PHASE --V001--,*
// EXEC ASMA90,SIZE=(ASMA90,64K),PARM='EXIT(LIBEXIT(EDECKXIT)),SIZE(MAXC
    -200K,ABOVE)'
    PRINT NOGEN
--V001-- MODETAB
    TITLE 'SP3820R'
***** C
* MODE TABEL ENTRY FOR 'SP3820R' * C
* SAMPLE LOGON-MODE TABLE ENTRY FOR RPM DEVICES * C
* RPM = REMOTE PRINT MANAGER USING PSF/VSE * C
* * * * * C
* APPROPRIATE VALUES FOR "RUSIZES", "PSNDPAC", and "SRCVPAC" * C
* DEPEND UPON THE CONFIGURATION USED. RECOMMENDED VALUES ARE * C
* LISTED IN THE FOLLOWING PARAMETER DESCRIPTIONS. * C
* * * * * C
* A) RUSIZES=X'8787' PSNDPAC=X'10' SRCVPAC=X'10' * C
* a. LOCAL-ATTACHED THROUGH A CONTROL UNIT TOKEN RING GATEWAY* C
* b. COMMUNICATION-ATTACHED THROUGH A LOCAL OR REMOTE * C
* COMMUNICATION CONTROLLER TOKEN-RING SUBSYSTEM * C
* * * * * C
* B) RUSIZES=X'8686' PSNDPAC=X'10' SRCVPAC=X'10' * C
* a. COMMUNICATION-ATTACHED THROUGH A REMOTE CONTROL UNIT * C
* TOKEN-RING GATEWAY * C

```

Figure 116 (Part 1 of 2). Logon Mode Table Definition Skeleton SKVTMMOD

Logon Mode Table Skeleton SKVTMMOD

```

*      C) RUSIZES=X'B7B7'  PSNDPAC=X'03'  SRCVPAC=X'03'      * C
*      a. COMMUNICATION-ATTACHED BY MEANS OF AN SDLC LINK    * C
*                                                              * C
*      IN RPM CONFIGURATIONS, THE RUSIZES VALUE YOU SPECIFY   * C
*      DICTATES APPROPRIATE SETTINGS FOR SEVERAL NCP DEFINITIONS * C
*      AND CONTROL UNIT PARAMETERS USED FOR CUSTOMIZATION.    * C
*                                                              * C
***** C
SP3820R  MODEENT LOGMODE=SP3820R,                               X
          COMPROT=X'D0B1',                                     X
          FMPROF=X'13',                                       X
          PRIPROT=X'B0',                                       X
          PSERVIC=X'0602000000000000000000002000',           X
          PSNDPAC=X'--V003--',                                 X
          RUSIZES=X'--V003--',                                 X
          SECPROT=X'B0',                                       X
          SRCVPAC=X'--V003--',                                 X
          SSNDPAC=X'00',                                       X
          TSPROF=X'07'                                         X
      TITLE '--V002--'
***** C
*                                                              * C
*      MODE TABLE ENTRY FOR --V002--                          * C
*                                                              * C
***** C
--V002-- MODEENT LOGMODE=--V002--,                               X
          COMPROT=X'--V003--',                                 X
          COS=--V004--,                                       X
          FMPROF=X'--V003--',                                 X
          PRIPROT=X'--V003--',                                 X
          PSERVIC=X'--V003--',                                 X
          PSNDPAC=X'--V003--',                                 X
          RUSIZES=X'--V003--',                                 X
          SECPROT=X'--V003--',                                 X
          SRCVPAC=X'--V003--',                                 X
          SSNDPAC=X'--V003--',                                 X
          TSPROF=X'--V003--',                                 X
          TYPE=X'--V003--'                                     X
      MODEEND
      END
                                                              C
                                                              C
      AFTER YOU HAVE MODIFIED THE SKELETON ENTER '@DTRSEXIT'  C
      FROM THE EDITOR'S COMMAND LINE.                          C
      THIS MACRO WILL DELETE ALL DESCRIPTIVE TEXT FROM THIS FILE, C
      BY DELETING ALL LINES WHICH ARE MARKED WITH THE CHARACTER C
      IN COLUMN 71.                                           C
                                                              C
/*
// EXEC LNKEDT
/&
* $$ E0J

```

Figure 116 (Part 2 of 2). Logon Mode Table Definition Skeleton SKVTMMOD

NCP Load Module File Skeleton SKNCPCLF

```

* $$ JOB JNM=NCPFILE,CLASS=0,DISP=D
* $$ LST CLASS=Q,DISP=D
// JOB NCPFILE      CREATE NCP LOAD MODULE FILE
* *****
* *
* * - - - - - CREATE NCP LOAD MODULE FILE - - - - - *
* *
* * THIS JOB IS FOR CREATING A SEQUENTIAL FILE CONTAINING AN *
* * NCP LOAD MODULE THAT IS TO BE LOADED INTO A 37xx COMMUNI- *
* * CATION CONTROLLER. *
* *
* *
* * THE FOLLOWING VARIABLES ARE USED AND HAVE TO BE CHANGED : *
* *
* * --V001-- STARTING ADDRESS OF EXTENT *
* * --V002-- EXTENT ALLOCATION (NUMBER OF BLOCKS/TRACKS) *
* * --V003-- NAME OF NCP LOAD MODULE (PHASE 1) *
* * --V004-- NAME OF NCP LOAD MODULE (PHASE 2) *
* * .... *
* * --V010-- NAME OF NCP LOAD MODULE (PHASE 8) *
* *
* * THE NUMBER OF PHASES DEPENDS ON THE RELEASE LEVEL OF NCP *
* * AND ALSO ON THE KIND OF NCP DEFINITIONS. *
* * FOR MORE INFORMATION SEE NCP, SSP AND EP GENERATION *
* * AND LOADING GUIDE. *
* *
* *****
*
ASSGN SYS000,SYSPCH
// ON $CANCEL OR $ABEND GOTO RESET
// DLBL IJSYSPH,'CU37XX.LOAD.FILE',99/366,SD
// EXTENT SYSPCH,,--V001--,--V002--
ASSGN SYSPCH,DISK,VOL=SYSWK1,SHR
// EXEC LIBR
ACCESS SUBLIB=PRD2.COMM2
PUNCH --V003--.PHASE --V004--.PHASE --V005--.PHASE --V006--.PHASE -
      --V007--.PHASE --V008--.PHASE --V009--.PHASE --V010--.PHASE
/*
/. RESET
CLOSE SYSPCH,IGN
ASSGN SYSPCH,SYS000
/&
$$ EOJ

```

Figure 117. Skeleton SKNCPCLF for Creating NCP Load Module

ACF/SSP Independent Loader Utility Skeleton SKNCPLD

```

* $$ JOB JNM=LOAD37XX,CLASS=0,DISP=D
* $$ LST CLASS=Q,DISP=D
// JOB LOAD37XX  LOAD 37XX USING ACF/SSP INDEPENDENT LOADER UTILITY
* *****
* *
* * - - - - - LOAD 37xx COMMUNICATION CONTROLLER - - - - - *
* *
* * THIS JOB IS FOR LOADING A 37xx COMMUNICATION CONTROLLER. *
* * IT USES THE ACF/SSP INDEPENDENT LOADER UTILITY.  THE NCP *
* * LOAD FILE IS TAKEN FROM A SEQUENTIAL FILE RESIDING ON A *
* * DISK DEVICE. *
* *
* *
* * THE FOLLOWING VARIABLES ARE USED AND HAVE TO BE CHANGED : *
* *
* * --V001-- LIBRARYNAME (FORMAT: LIBRARY.SUBLIBRARY) *
* *          NAME OF THE LIBRARY WHERE THE ACF/SSP INDEPENDENT *
* *          LOADER UTILITY IS LOCATED *
* * --V002-- DEVICE ADDRESS OF 37xx *
* * --V003-- NAME OF THE NCP LOAD FILE *
* *
* *****
*
// LIBDEF PHASE,SEARCH=(--V001--),TEMP
// ASSGN  SYS000,--V002--
// DLBL   --V003--, 'CU37XX.LOAD.FILE',99/366,SD
// EXTENT SYS005,SYSWK1
// ASSGN  SYS005,DISK,VOL=SYSWK1,SHR
// OPTION NODUMP
// EXEC   IFULOAD,SIZE=AUTO
// LOAD   LOADMOD=--V003--,UNIT=SYS000
/*
/&
* $$ EOJ
END OF MEMBER

```

Figure 118. Loading the IBM 37xx - Skeleton SKNCPLD

NCP Generation Workfile Skeleton SKNCPWKF

```

* ***** C
* C
* - - - - - NCP GENERATION SUPPORT - - - - - C
*          CREATE WORK FILE DBWRKFL C
* THIS JOB IS FOR CREATING THE WORK FILE DBWRKFL. THIS WORK FILE IS C
* REQUIRED WHEN THERE IS NOT ENOUGH VIRTUAL MEMORY TO HOLD ALL OF C
* NDF'S WORK DATA OR IF USERGEN IS SPECIFIED. THE LABEL FOR THE WORK C
* FILE WILL AUTOMATICALLY BE ADDED TO THE STANDARD LABELS AND TO C
* THE PROCEDURE STDLABUP. C
* C
* A RETURN CODE OF 8 IS EXPECTED IF THE WORK FILE DOES NOT EXIST WHEN C
* RUNNING THIS JOB. C
* C
* THE FOLLOWING VARIABLE IS USED AND HAS TO BE CHANGED: C
* C
* -V001- VOLUME OR VOLUMES THAT HAVE AVAILABLE VSAM SPACE C
*        TO HOLD THE WORK FILE. THE VSAM SPACE MUST BE UNDER C
*        CONTROL OF THE USER CATALOG VSESPUC. C
* ***** C
* $$ JOB JNM=NCPWRKFL,DISP=D,CLASS=0
// JOB NCPWRKFL          CREATE NCP WORKFILE DBWRKFL
// EXEC IDCAMS, SIZE=AUTO
    DELETE (NCP.NDF.WORK.SPACE) PURGE CL -
        CATALOG(VSESP.USER.CATALOG)
    DEFINE CLUSTER (NAME(NCP.NDF.WORK.SPACE) -
        NUMBERED -
        RECORDS (100 100) -
        RECORDSIZE (4096 4096) -
        CISZ (4608) -
        VOLUMES (-V001-)) -
        DATA (NAME(NCP.NDF.WORK.SPACE.DATA) -
            FILE(DBWRKFL)) -
        CATALOG (VSESP.USER.CATALOG)
/*
// OPTION STDLABEL=DELETE
DBWRKFL
/*
// OPTION STDLABEL=ADD
// DLBL DBWRKFL, 'NCP.NDF.WORK.SPACE', 99/366, VSAM, CAT=VSESPUC
/*
// EXEC IESVCLUP, SIZE=AUTO          ADD LABEL TO STDLABUP PROC
D                                     DBWRKFL
A NCP.NDF.WORK.SPACE                DBWRKFL VSESPUC
/*
/&
* $$ EOJ

```

Figure 119. Defining an NCP Generation Workfile - Skeleton SKNCPWKF

SKNCPWKF for NCP Generation Workfile

Appendix C. VSE/ESA Definitions for Autoinstall Terminals

CICS System Definition File

During initial installation, VSE/ESA creates and initializes a CICS System Definition (CSD) file with DFHPPTSP and DFHPCTSP entries. These entries are placed into group *VSESPG*, which can then be manipulated by the Resource Definition Online (RDO) transaction of CICS. The transaction ID for RDO is *CEDA*. The name of the CSD file is *CICS.CSD*. Figure 120 shows the JCL you use for upgrading the original definition made during base installation. Note that the file is not used by the job stream that starts up CICS and VSE/ICCF.

```
* $$ JOB JNM=SKCSDFIL,CLASS=0,DISP=D,PRI=3
// JOB SKCSDFIL  UPGRADE CICS CSD FILE
* *****
*
* ----- C I C S   CSD FILE UPGRADE -----
*
* THIS SKELETON MAY BE USED TO PERFORM AN UPGRADE OF THE
* CICS CSD FILE
*
* *****
*
* CLOSE DFHCSD FILE FIRST
*
* ISSUE FOLLOWING COMMANDS SEQUENCE ON THE CONSOLE AFTER  // PAUSE
*   MSG F2
*   XX CEMT SET FI(DFHCSD) CLOSE      (XX = REPLY-ID)
*   REPLY "(END/ENTER)" TO CONTINUE
* -----
// PAUSE
// EXEC DFHCSDUP,SIZE=600K      UPDATE CICS CSD VSAM FILE
      UPGRADE
      DELETE GROUP(VSETYPE)
      DELETE GROUP(VSETERM)
      UPGRADE USING(IESMODEL)
      DELETE GROUP(VSESPG)
      DELETE GROUP(VSEAI62)
* $$ SLI Z.IESZPCT
* $$ SLI Z.IESZPCTI
* $$ SLI Z.IESWPCT
* $$ SLI Z.IESZPPT
* $$ SLI Z.IESZPPTI
* $$ SLI Z.IESZPPTL
* $$ SLI Z.IESWPPT
* $$ SLI Z.IESWPPTL
* $$ SLI Z.IESZTCT
      APPEND LIST(DFHLIST) TO(VSELIST)
      COPY GROUP(DFHAI62) TO(VSEAI62)
```

Figure 120 (Part 1 of 2). Skeleton SKCSDFIL to Upgrade CSD File for the CICS Transaction Server

Define Terminal Statements

```
ALTER SESSION(CBPS) GROUP(VSEAI62) MODENAME(VSELU62)
ALTER SESSION(CBSS) GROUP(VSEAI62) MODENAME(VSELU62)
ALTER SESSION(CCPS) GROUP(VSEAI62) MODENAME(VSELU62)
ADD GROUP(VSEAI62) LIST(VSELIST)
ADD GROUP(VSETYPE) LIST(VSELIST)
ADD GROUP(VSETERM) LIST(VSELIST)
ADD GROUP(VSETERM1) LIST(VSELIST)
ADD GROUP(VSESPG) LIST(VSELIST)
ADD GROUP(DFHRCF) LIST(VSELIST)
ADD GROUP(DFHCLNT) LIST(VSELIST)
DELETE GROUP(CEE)
* $$ SLI MEM=CEECCSD.Z,S=(PRD2.SCEEBASE)
* $$ SLI MEM=IBMCCSD.Z,S=(PRD2.SCEEBASE)
* $$ SLI MEM=IGZCCSD.Z,S=(PRD2.SCEECICS)
* $$ SLI MEM=EDCCCS.D.Z,S=(PRD2.SCEEBASE)
ADD GROUP(CEE) LIST(VSELIST)
DELETE GROUP(TCPIP)
* $$ SLI MEM=IPNCSD.Z,S=(PRD1.BASE)
ADD GROUP(TCPIP) LIST(VSELIST)
LIST ALL
/*
*
* OPEN DFHCSD FILE
*
* ISSUE FOLLOWING COMMANDS SEQUENCE ON THE CONSOLE AFTER // PAUSE
* MSG F2
* XX CEMT SET FI(DFHCSD) OPEN (XX = REPLY-ID)
* REPLY "(END/ENTER)" TO CONTINUE
* -----
// PAUSE
/*
/&
* $$ E0J
```

Figure 120 (Part 2 of 2). Skeleton SKCSDFIL to Upgrade CSD File for the CICS Transaction Server

The GRPLIST=VSELIST parameter is contained in the CICS/ICCF startup job. With this job the CSD file will become activated.

Because the GRPLIST=VSELIST parameter is contained in the CICS/ICCF startup job, you should no longer edit the PPT, PCT, or TCT and create new macro definitions. At system startup, these changes would be overwritten by the corresponding RDO definitions. To change the tables, therefore, use RDO only.

DEFINE TERMINAL Statements for Autoinstall Terminals

VSE/ESA uses the DEFINE TERMINAL statements listed in Figure 121 on page 249 and Figure 122 on page 251 to define autoinstall terminals and terminal printers. All of these devices are assigned to group **VSETERM**. The DEFINE TYPETERM statements that serve as models for local non-SNA terminals and terminal printers begin on page 253. The DEFINE TYPETERM statements for SNA terminals and terminal printers begin on page 266.

IBM 3178, 3277, 3278-2, 3279-S2A, 3279-2X, 3290

```
DEFINE TERMINAL(D901) GROUP(VSETERM)          AUTINSTMODEL(ONLY)
  TYPETERM(VSE32782)  AUTINSTNAME(VSE32782)
```

IBM 3278-3, 3279-S3A, 3279-3X

```
DEFINE TERMINAL(D902) GROUP(VSETERM)          AUTINSTMODEL(ONLY)
  TYPETERM(VSE32783)  AUTINSTNAME(VSE32783)
```

IBM 3278-4

```
DEFINE TERMINAL(D903) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  TYPETERM(VSE32784)  AUTINSTNAME(VSE32784)
```

IBM 3278-5

```
DEFINE TERMINAL(D904) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  TYPETERM(VSE32785)  AUTINSTNAME(VSE32785)
```

IBM 3179, 3279-S2B

```
DEFINE TERMINAL(D905) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  TYPETERM(VSE32792)  AUTINSTNAME(VSE32792)
```

IBM 3279-S3B

```
DEFINE TERMINAL(D906) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  TYPETERM(VSE32793)  AUTINSTNAME(VSE32793)
```

IBM 5555

```
DEFINE TERMINAL(D907) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  TYPETERM(VSE5555)  AUTINSTNAME(VSE5555)
```

IBM 3262-3/13, 3268-2, 3287-1/2/1C/2C, 3289-1/2, 5210-G01/G02

```
DEFINE TERMINAL(D908) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  OPERRSL(1)           SPOOLPRTRSL(1)
  TYPETERM(VSEDCP)     AUTINSTNAME(VSEDCP)
```

IBM 5553, 5557

```
DEFINE TERMINAL(D909) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  OPERRSL(1)           SPOOLPRTRSL(1)
  TYPETERM(VSE5557)  AUTINSTNAME(VSE5557)
```

IBM 3270 with QUERY=YES

```
DEFINE TERMINAL(D910) GROUP(VSETERM)          AUTINSTMODEL(ONLY)
  TYPETERM(VSE3278Q)  AUTINSTNAME(VSE3278Q)
```

IBM 3270P with QUERY=YES

```
DEFINE TERMINAL(D911) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  OPERRSL(1)           SPOOLPRTRSL(1)
  TYPETERM(VSEDCPQ)    AUTINSTNAME(VSEDCPQ)
```

Figure 121 (Part 1 of 2). DEFINE TERMINAL Statements for Local Non-SNA Terminals and Terminal Printers

Define Terminal Statements

IBM 3279-S3G

```
DEFINE TERMINAL(D912) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  TYPETERM(VSE3279G)  AUTINSTNAME(VSE3279G)
```

IBM 3277

```
DEFINE TERMINAL(D913) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  TYPETERM(VSE3277)  AUTINSTNAME(VSE3277)
```

IBM 3290 Screen 62x160

```
DEFINE TERMINAL(D914) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  TYPETERM(VSE3290)  AUTINSTNAME(VSE3290)
```

Figure 121 (Part 2 of 2). DEFINE TERMINAL Statements for Local Non-SNA Terminals and Terminal Printers

IBM 3178, 3277, 3278-2, 3279-S2A, 3279-2X, 3290

```
DEFINE TERMINAL(S001) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  TYPETERM(VSELU2A)    AUTINSTNAME(VSELU2A)
```

IBM 3278-3, 3279-S3A, 3279-3X

```
DEFINE TERMINAL(S002) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  TYPETERM(VSELU2B)    AUTINSTNAME(VSELU2B)
```

IBM 3278-4

```
DEFINE TERMINAL(S003) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  TYPETERM(VSELU2C)    AUTINSTNAME(VSELU2C)
```

IBM 3278-5

```
DEFINE TERMINAL(S004) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  TYPETERM(VSELU2D)    AUTINSTNAME(VSELU2D)
```

IBM 3179, 3279-S2B

```
DEFINE TERMINAL(S005) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  TYPETERM(VSELU2E)    AUTINSTNAME(VSELU2E)
```

IBM 3279-S3B

```
DEFINE TERMINAL(S006) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  TYPETERM(VSELU2F)    AUTINSTNAME(VSELU2F)
```

IBM 3279-S3G

```
DEFINE TERMINAL(S007) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  TYPETERM(VSELU2G)    AUTINSTNAME(VSELU2G)
```

IBM 5555

```
DEFINE TERMINAL(S008) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  TYPETERM(VSELU2H)    AUTINSTNAME(VSELU2H)
```

IBM 3262-3/13, 3268-2, 5210-G01/G02

```
DEFINE TERMINAL(S009) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  OPERRSL(1)           SPOOLPRTRSL(1)
  TYPETERM(VSELU3A)    AUTINSTNAME(VSELU3A)
```

IBM 3287-1/2, 3289-1/2

```
DEFINE TERMINAL(S010) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  OPERRSL(1)           SPOOLPRTRSL(1)
  TYPETERM(VSESCSPA)   AUTINSTNAME(VSESCSPA)
```

IBM 3287-1C/2C

```
DEFINE TERMINAL(S011) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  OPERRSL(1)           SPOOLPRTRSL(1)
  TYPETERM(VSESCSPB)   AUTINSTNAME(VSESCSPB)
```

Figure 122 (Part 1 of 2). DEFINE TERMINAL Statements for Local and Remote SNA Terminals and Terminal Printers

Define Terminal Statements

IBM 5553/57 LUTYPE3 Printer - Local (attached at IBM 3274-x1A)

```
DEFINE TERMINAL(S012) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  OPERRSL(1)          SPOOLPRTRSL(1)
  TYPETERM(VSELU3B)   AUTINSTNAME(VSELU3B)
```

IBM 5553/57 SCS Printer - Local (attached at IBM 3274-x1A)

and

IBM 5553/57 SCS Printer - Remote (attached at IBM 3274-x1C or as single station via SDLC line)

```
DEFINE TERMINAL(S013) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  OPERRSL(1)          SPOOLPRTRSL(1)
  TYPETERM(VSESCSPC)  AUTINSTNAME(VSESCSPC)
```

IBM 5553/57 LUTYPE3 Printer - Remote (attached at IBM 3274-x1C or as single station via SDLC line)

```
DEFINE TERMINAL(S014) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  OPERRSL(1)          SPOOLPRTRSL(1)
  TYPETERM(VSELU3C)   AUTINSTNAME(VSELU3C)
```

LUTYPE2 Terminal with QUERY=YES

```
DEFINE TERMINAL(S015) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  TYPETERM(VSELU2Q)   AUTINSTNAME(VSELU2Q)
```

LUTYPE3 Printer with QUERY=YES

```
DEFINE TERMINAL(S016) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  OPERRSL(1)          SPOOLPRTRSL(1)
  TYPETERM(VSELU3Q)   AUTINSTNAME(VSELU3Q)
```

LUTYPE1 SCS Printer with QUERY=YES

```
DEFINE TERMINAL(S017) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  OPERRSL(1)          SPOOLPRTRSL(1)
  TYPETERM(VSESCSPQ)  AUTINSTNAME(VSESCSPQ)
```

IBM 3290 Screen 62x160

```
DEFINE TERMINAL(S018) GROUP(VSETERM) AUTINSTMODEL(ONLY)
  TYPETERM(VSELU2I)   AUTINSTNAME(VSELU2I)
```

Figure 122 (Part 2 of 2). DEFINE TERMINAL Statements for Local and Remote SNA Terminals and Terminal Printers

DEFINE TYPETERM Models for Non-SNA Devices

All of the DEFINE TYPETERM models in the following section are for *local* non-SNA terminals and terminal printers.

IBM 3277

```

DEFINE TYPETERM(VSE3277) GROUP(VSETYPE)
  DEVICE(3270) TERMMODEL(2)
  SHIPPABLE(YES)
  PAGESIZE(24,80) ALTPAGE(0,0)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(NO)
  DEFSCREEN(0,0) ALTSCREEN(0,0) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(YES) COLOR(NO)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDEDS(NO)
  HILIGHT(NO) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(NO) VALIDATION(NO)
  FORMFEED(NO) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(NO) SOSI(NO) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(0) RECEIVESIZE(0)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(NO) DISCREQ(YES)
  NEPCLASS(0) SIGNOFF(YES)
  ROUTEDMSGS(ALL) LOGONMSG(YES)
  BUILDCHAIN(NO) USERAREALEN(255) IOAREALEN(300,0)
  UCTRAN(TRANID)

```

Define Typeterm Models (non-SNA)

IBM 3178, 3277, 3278-2, 3279-S2A, 3279-2X, 3290

```
DEFINE TYPETERM(VSE32782) GROUP(VSETYPE)
  DEVICE(3270) TERMMODEL(2)
  SHIPPABLE(YES)
  PAGESIZE(24,80) ALTPAGE(0,0)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(NO)
  DEFSCREEN(24,80) ALTSCREEN(0,0) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(YES) COLOR(NO)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDEDS(NO)
  HILIGHT(NO) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(NO) VALIDATION(NO)
  FORMFEED(NO) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(NO) SOSI(NO) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(0) RECEIVESIZE(0)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(NO) DISCREQ(YES)
  NEPCCLASS(0) SIGNOFF(YES)
  ROUTEDMSGS(ALL) LOGONMSG(YES)
  BUILDCHAIN(NO) USERAREALEN(255) IOAREALEN(300,0)
  UCTRAN(TRANID)
```


IBM 3278-3, 3279-S3A, 3279-3X

```

DEFINE TYPETERM(VSE32783) GROUP(VSETYPE)
  DEVICE(3270) TERMMODEL(2)
  SHIPPABLE(YES)
  PAGESIZE(24,80) ALTPAGE(32,80)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(NO)
  DEFSCREEN(24,80) ALTSCREEN(32,80) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(YES) COLOR(NO)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDEDS(NO)
  HILIGHT(NO) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(NO) VALIDATION(NO)
  FORMFEED(NO) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(NO) SOSI(NO) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(0) RECEIVESIZE(0)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(NO) DISCREQ(YES)
  NEPCCLASS(0) SIGNOFF(YES)
  ROUTEDMSGs(ALL) LOGONMSG(YES)
  BUILDCHAIN(NO) USERAREALEN(255) IOAREALEN(300,0)
  UCTRAN(TRANID)

```

Define Typeterm Models (non-SNA)

IBM 3278-4

```
DEFINE TYPETERM(VSE32784) GROUP(VSETYPE)
  DEVICE(3270) TERMMODEL(2)
  SHIPPABLE(YES)
  PAGESIZE(24,80) ALTPAGE(43,80)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(NO)
  DEFSCREEN(24,80) ALTSCREEN(43,80) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(YES) COLOR(NO)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDEDS(NO)
  HILIGHT(NO) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(NO) VALIDATION(NO)
  FORMFEED(NO) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(NO) SOSI(NO) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(0) RECEIVESIZE(0)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(NO) DISCREQ(YES)
  NEPCCLASS(0) SIGNOFF(YES)
  ROUTEDMSGS(ALL) LOGONMSG(YES)
  BUILDCHAIN(NO) USERAREALEN(255) IOAREALEN(300,0)
  UCTRAN(TRANID)
```

IBM 3278-5

```

DEFINE TYPETERM(VSE32785) GROUP(VSETYPE)
  DEVICE(3270) TERMMODEL(2)
  SHIPPABLE(YES)
  PAGESIZE(24,80) ALTPAGE(27,132)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(NO)
  DEFSCREEN(24,80) ALTSCREEN(27,132) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(YES) COLOR(NO)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDEDS(NO)
  HILIGHT(NO) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(NO) VALIDATION(NO)
  FORMFEED(NO) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(NO) SOSI(NO) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(0) RECEIVESIZE(0)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(NO) DISCREQ(YES)
  NEPCCLASS(0) SIGNOFF(YES)
  ROUTEDMSGs(ALL) LOGONMSG(YES)
  BUILDCHAIN(YES) USERAREALEN(255) IOAREALEN(1024,4096)
  UCTRAN(TRANID)

```

Define Typeterm Models (non-SNA)

IBM 3179, 3279-S2B

```
DEFINE TYPETERM(VSE32792) GROUP(VSETYPE)
  DEVICE(3270) TERMMODEL(2)
  SHIPPABLE(YES)
  PAGESIZE(24,80) ALTPAGE(24,80)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(NO)
  DEFSCREEN(24,80) ALTSCREEN(24,80) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(YES) COLOR(YES)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDS(YES)
  HILIGHT(YES) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(NO) VALIDATION(NO)
  FORMFEED(NO) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(NO) SOSI(NO) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(0) RECEIVESIZE(0)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(NO) DISCREQ(YES)
  NEPCLASS(0) SIGNOFF(YES)
  ROUTEDMSGs(ALL) LOGONMSG(YES)
  BUILDCHAIN(NO) USERAREALEN(255) IOAREALEN(300,0)
  UCTRAN(TRANID)
```

IBM 3279-S3B

```

DEFINE TYPETERM(VSE32793) GROUP(VSETYPE)
  DEVICE(3270) TERMMODEL(2)
  SHIPPABLE(YES)
  PAGESIZE(24,80) ALTPAGE(32,80)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(NO)
  DEFSCREEN(24,80) ALTSCREEN(32,80) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(YES) COLOR(YES)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDEDS(YES)
  HILIGHT(YES) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(NO) VALIDATION(NO)
  FORMFEED(NO) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(NO) SOSI(NO) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(0) RECEIVESIZE(0)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(NO) DISCREQ(YES)
  NEPCCLASS(0) SIGNOFF(YES)
  ROUTEDMSGs(ALL) LOGONMSG(YES)
  BUILDCHAIN(NO) USERAREALEN(255) IOAREALEN(300,0)
  UCTRAN(TRANID)

```

Define Typeterm Models (non-SNA)

IBM 3279-S3G

```
DEFINE TYPETERM(VSE3279G) GROUP(VSETYPE)
  DEVICE(3270) TERMMODEL(2)
  SHIPPABLE(YES)
  PAGESIZE(24,80) ALTPAGE(32,80)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(NO)
  DEFSCREEN(24,80) ALTSCREEN(32,80) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(YES) COLOR(YES)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDEDS(YES)
  HILIGHT(YES) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(YES) VALIDATION(NO)
  FORMFEED(NO) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(NO) SOSI(NO) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(0) RECEIVESIZE(0)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(NO) DISCREQ(YES)
  NEPCCLASS(0) SIGNOFF(YES)
  ROUTEDMSGs(ALL) LOGONMSG(YES)
  BUILDCHAIN(NO) USERAREALEN(255) IOAREALEN(300,0)
  UCTRAN(TRANID)
```

IBM 3290

```

DEFINE TYPETERM(VSE3290) GROUP(VSETYPE)
  DEVICE(3270) TERMMODEL(2)
  SHIPPABLE(YES)
  PAGESIZE(24,80) ALTPAGE(0,0)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(NO)
  DEFSCREEN(24,80) ALTSCREEN(62,160) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(YES) COLOR(NO)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDEDS(NO)
  HIGHLIGHT(NO) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(NO) VALIDATION(NO)
  FORMFEED(NO) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(NO) SOSI(NO) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(0) RECEIVESIZE(0)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHIGHLIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(NO) DISCREQ(YES)
  NEPCCLASS(0) SIGNOFF(YES)
  ROUTEDMSGs(ALL) LOGONMSG(YES)
  BUILDCHAIN(NO) USERAREALEN(255) IOAREALEN(300,0)
  UCTRAN(TRANID)

```

Define Typeterm Models (non-SNA)

IBM 5555

```
DEFINE TYPETERM(VSE5555) GROUP(VSETYPE)
  DEVICE(3270) TERMMODEL(2)
  SHIPPABLE(YES)
  PAGESIZE(24,80) ALTPAGE(24,80)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(NO)
  DEFSCREEN(24,80) ALTSCREEN(24,80) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(YES) COLOR(NO)
  COPY(NO) DUALCASEKYBD(YES) EXTENDEDDS(YES)
  HILIGHT(NO) KATAKANA(YES) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(YES) PROGSYMBOLS(YES) VALIDATION(NO)
  FORMFEED(NO) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(YES) SOSI(YES) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(0) RECEIVESIZE(0)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(NO) DISCREQ(YES)
  NEPCCLASS(0) SIGNOFF(YES)
  ROUTEDMSGS(ALL) LOGONMSG(YES)
  BUILDCHAIN(NO) USERAREALEN(255) IOAREALEN(300,0)
  UCTRAN(TRANID)
```


IBM 3262-3/13, 3268-2, 3287-1/2/1C/2C, 3289-1/2, 5210-G01/G02

```

DEFINE TYPETERM(VSEDS CP) GROUP(VSETYPE)
  DEVICE(3270P) TERMMODEL(2)
  SHIPPABLE(NO)
  PAGESIZE(24,80) ALTPAGE(24,80)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(YES)
  DEFSCREEN(24,80) ALTSCREEN(24,80) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(NO) COLOR(NO)
  COPY(NO) DUALCASEKYBD(NO) EXTENDED DS(NO)
  HIGHLIGHT(NO) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(NO) VALIDATION(NO)
  FORMFEED(YES) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(NO) SOSI(NO) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(0) RECEIVESIZE(256)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHIGHLIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(YES) DISCREQ(YES)
  NEPCCLASS(0) SIGNOFF(YES)
  ROUTEDMSGs(ALL) LOGONMSG(NO)
  BUILDCHAIN(NO) USERAREALEN(255) IOAREALEN(256,0)
  UCTRAN(NO)

```

Define Typeterm Models (non-SNA)

IBM 5553, 5557

```
DEFINE TYPETERM(VSE5557) GROUP(VSETYPE)
DEVICE(3270P) TERMMODEL(2)
SHIPPABLE(NO)
PAGESIZE(24,80) ALTPAGE(24,80)
FMHPARM(NO) OBOPERID(NO)
AUTOPAGE(YES)
DEFSCREEN(24,80) ALTSCREEN(24,80) APLKYBD(NO)
APLTEXT(NO) AUDIBLEALARM(NO) COLOR(NO)
COPY(NO) DUALCASEKYBD(NO) EXTENDEDDEDS(NO)
HIGHLIGHT(NO) KATAKANA(NO) LIGHTPEN(NO)
MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
PRINTADAPTER(NO) PROGSYMBOLS(YES) VALIDATION(NO)
FORMFEED(YES) HORIZFORM(NO) VERTICALFORM(NO)
TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
OUTLINE(YES) SOSI(YES) BACKTRANS(NO)
CGCSGID(0,0)
ASCII(NO) SENDSIZE(0) RECEIVESIZE(256)
BRACKET(YES)
ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
ERRHIGHLIGHT(NO)
AUTOCONNECT(NO) ATI(YES) TTI(YES)
CREATESESS(YES) RELREQ(YES) DISCREQ(YES)
NEPCCLASS(0) SIGNOFF(YES)
ROUTEDMSGS(ALL) LOGONMSG(NO)
BUILDCHAIN(NO) USERAREALEN(255) IOAREALEN(256,0)
UCTRAN(NO)
```

IBM 3270 with QUERY=YES

```
DEFINE TYPETERM(VSE3278Q) GROUP(VSETYPE)
DEVICE(3270) TERMMODEL(2)
SHIPPABLE(YES)
PAGESIZE(24,80)
FMHPARM(NO) OBOPERID(NO)
AUTOPAGE(NO)
DEFSCREEN(24,80) APLKYBD(NO)
AUDIBLEALARM(YES)
COPY(NO) DUALCASEKYBD(NO)
KATAKANA(NO) LIGHTPEN(NO)
PRINTADAPTER(NO)
FORMFEED(NO) HORIZFORM(NO) VERTICALFORM(NO)
TEXTKYBD(NO) TEXTPRINT(NO) QUERY(ALL)
ASCII(NO) SENDSIZE(0) RECEIVESIZE(0)
BRACKET(YES)
ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
ERRHIGHLIGHT(NO)
AUTOCONNECT(NO) ATI(YES) TTI(YES)
CREATESESS(YES) RELREQ(NO) DISCREQ(YES)
NEPCCLASS(0) SIGNOFF(YES)
ROUTEDMSGS(ALL) LOGONMSG(YES)
BUILDCHAIN(NO) USERAREALEN(255) IOAREALEN(300,0)
UCTRAN(TRANID)
```

IBM 3270P with QUERY=YES

```

DEFINE TYPETERM(VSEDSCPQ) GROUP(VSETYPE)
  DEVICE(3270P) TERMMODEL(2)
  SHIPPABLE(NO)
  PAGESIZE(24,80)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(YES)
  DEFSCREEN(24,80) APLKYBD(NO)
  AUDIBLEALARM(NO)
  COPY(NO) DUALCASEKYBD(NO)
  KATAKANA(NO) LIGHTPEN(NO)
  PRINTADAPTER(NO)
  FORMFEED(YES) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(ALL)
  ASCII(NO) SENDSIZE(0) RECEIVESIZE(256)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(YES) DISCREQ(YES)
  NEPCCLASS(0) SIGNOFF(YES)
  ROUTEDMSGS(ALL) LOGONMSG(NO)
  BUILDCHAIN(NO) USERAREALEN(255) IOAREALEN(256,0)
  UCTRAN(NO)

```

DEFINE TYPETERM Models for SNA Devices

Unless otherwise noted, the DEFINE TYPETERM models in this section are for both local and remote SNA terminals and terminal printers.

IBM 3178, 3277, 3278-2, 3279-S2A, 3279-2X, 3290

```
DEFINE TYPETERM(VSELU2A) GROUP(VSETYPE)
  DEVICE(LUTYPE2) TERMMODEL(2)
  SHIPPABLE(YES)
  PAGESIZE(24,80) ALTPAGE(0,0)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(NO)
  DEFSCREEN(24,80) ALTSCREEN(0,0) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(YES) COLOR(NO)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDS(NO)
  HILIGHT(NO) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(NO) VALIDATION(NO)
  FORMFEED(NO) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(NO) SOSI(NO) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(1536) RECEIVESIZE(1024)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(NO) DISCREQ(YES)
  NEPCLASS(0) SIGNOFF(YES)
  ROUTEDMSGS(ALL) LOGONMSG(YES)
  BUILDCHAIN(YES) USERAREALEN(255) IOAREALEN(1024,4096)
  UCTRAN(TRANID)
```

IBM 3278-3, 3279-S3A, 3279-3X

```

DEFINE TYPETERM(VSELU2B) GROUP(VSETYPE)
  DEVICE(LUTYPE2) TERMMODEL(2)
  SHIPPABLE(YES)
  PAGESIZE(24,80) ALTPAGE(32,80)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(NO)
  DEFSCREEN(24,80) ALTSCREEN(32,80) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(YES) COLOR(NO)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDEDS(NO)
  HIGHLIGHT(NO) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(NO) VALIDATION(NO)
  FORMFEED(NO) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(NO) SOSI(NO) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(1536) RECEIVESIZE(1024)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHIGHLIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(NO) DISCREQ(YES)
  NEPCCLASS(0) SIGNOFF(YES)
  ROUTEDMSGs(ALL) LOGONMSG(YES)
  BUILDCHAIN(YES) USERAREALEN(255) IOAREALEN(1024,4096)
  UCTRAN(TRANID)

```

Define Typeterm Models (SNA)

IBM 3278-4

```
DEFINE TYPETERM(VSELU2C) GROUP(VSETYPE)
  DEVICE(LUTYPE2) TERMMODEL(2)
  SHIPPABLE(YES)
  PAGESIZE(24,80) ALTPAGE(43,80)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(NO)
  DEFSCREEN(24,80) ALTSCREEN(43,80) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(YES) COLOR(NO)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDEDS(NO)
  HILIGHT(NO) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(NO) VALIDATION(NO)
  FORMFEED(NO) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(NO) SOSI(NO) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(1536) RECEIVESIZE(1024)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(NO) DISCREQ(YES)
  NEPCLASS(0) SIGNOFF(YES)
  ROUTEDMSGS(ALL) LOGONMSG(YES)
  BUILDCHAIN(YES) USERAREALEN(255) IOAREALEN(1024,4096)
  UCTRAN(TRANID)
```

IBM 3278-5

```

DEFINE TYPETERM(VSELU2D) GROUP(VSETYPE)
  DEVICE(LUTYPE2) TERMMODEL(2)
  SHIPPABLE(YES)
  PAGESIZE(24,80) ALTPAGE(27,132)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(NO)
  DEFSCREEN(24,80) ALTSCREEN(27,132) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(YES) COLOR(NO)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDEDS(NO)
  HILIGHT(NO) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(NO) VALIDATION(NO)
  FORMFEED(NO) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(NO) SOSI(NO) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(1536) RECEIVESIZE(1024)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(NO) DISCREQ(YES)
  NEPCCLASS(0) SIGNOFF(YES)
  ROUTEDMSGs(ALL) LOGONMSG(YES)
  BUILDCHAIN(YES) USERAREALEN(255) IOAREALEN(1024,4096)
  UCTRAN(TRANID)

```

Define Typeterm Models (SNA)

IBM 3179, 3279-S2B

```
DEFINE TYPETERM(VSELU2E) GROUP(VSETYPE)
  DEVICE(LUTYPE2) TERMMODEL(2)
  SHIPPABLE(YES)
  PAGESIZE(24,80) ALTPAGE(24,80)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(NO)
  DEFSCREEN(24,80) ALTSCREEN(24,80) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(YES) COLOR(YES)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDEDS(YES)
  HILIGHT(YES) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(NO) VALIDATION(NO)
  FORMFEED(NO) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(NO) SOSI(NO) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(1536) RECEIVESIZE(1024)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(NO) DISCREQ(YES)
  NEPCLASS(0) SIGNOFF(YES)
  ROUTEDMSGs(ALL) LOGONMSG(YES)
  BUILDCHAIN(YES) USERAREALEN(255) IOAREALEN(1024,4096)
  UCTRAN(TRANID)
```


IBM 3279-S3B

```

DEFINE TYPETERM(VSELU2F) GROUP(VSETYPE)
  DEVICE(LUTYPE2) TERMMODEL(2)
  SHIPPABLE(YES)
  PAGESIZE(24,80) ALTPAGE(32,80)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(NO)
  DEFSCREEN(24,80) ALTSCREEN(32,80) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(YES) COLOR(YES)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDEDS(YES)
  HILIGHT(YES) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(NO) VALIDATION(NO)
  FORMFEED(NO) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(NO) SOSI(NO) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(1536) RECEIVESIZE(1024)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(NO) DISCREQ(YES)
  NEPCCLASS(0) SIGNOFF(YES)
  ROUTEDMSGs(ALL) LOGONMSG(YES)
  BUILDCHAIN(YES) USERAREALEN(255) IOAREALEN(1024,4096)
  UCTRAN(TRANID)

```

Define Typeterm Models (SNA)

IBM 3279-S3G

```
DEFINE TYPETERM(VSELU2G) GROUP(VSETYPE)
  DEVICE(LUTYPE2) TERMMODEL(2)
  SHIPPABLE(YES)
  PAGESIZE(24,80) ALTPAGE(32,80)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(NO)
  DEFSCREEN(24,80) ALTSCREEN(32,80) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(YES) COLOR(YES)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDEDS(YES)
  HILIGHT(YES) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(YES) VALIDATION(NO)
  FORMFEED(NO) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(NO) SOSI(NO) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(1536) RECEIVESIZE(1024)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(NO) DISCREQ(YES)
  NEPCLASS(0) SIGNOFF(YES)
  ROUTEDMSGs(ALL) LOGONMSG(YES)
  BUILDCHAIN(YES) USERAREALEN(255) IOAREALEN(1024,4096)
  UCTRAN(TRANID)
```

IBM 5555

```

DEFINE TYPETERM(VSELU2H) GROUP(VSETYPE)
  DEVICE(LUTYPE2) TERMMODEL(2)
  SHIPPABLE(YES)
  PAGESIZE(24,80) ALTPAGE(24,80)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(NO)
  DEFSCREEN(24,80) ALTSCREEN(24,80) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(YES) COLOR(NO)
  COPY(NO) DUALCASEKYBD(YES) EXTENDEDDS(YES)
  HILIGHT(NO) KATAKANA(YES) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(YES) PROGSYMBOLS(YES) VALIDATION(NO)
  FORMFEED(NO) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(YES) SOSI(YES) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(1536) RECEIVESIZE(1024)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(NO) DISCREQ(YES)
  NEPCCLASS(0) SIGNOFF(YES)
  ROUTEDMSGs(ALL) LOGONMSG(YES)
  BUILDCHAIN(YES) USERAREALEN(255) IOAREALEN(1024,4096)
  UCTRAN(TRANID)

```

Define Typeterm Models (SNA)

IBM 3262-3/13, 3268-2, 5210-G01/G02

```
DEFINE TYPETERM(VSELU3A) GROUP(VSETYPE)
  DEVICE(LUTYPE3) TERMMODEL(2)
  SHIPPABLE(NO)
  PAGESIZE(24,80) ALTPAGE(24,80)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(YES)
  DEFSCREEN(24,80) ALTSCREEN(24,80) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(NO) COLOR(NO)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDEDS(NO)
  HILIGHT(NO) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(NO) VALIDATION(NO)
  FORMFEED(YES) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(NO) SOSI(NO) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(256) RECEIVESIZE(256)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(YES) DISCREQ(YES)
  NEPCLASS(0) SIGNOFF(YES)
  ROUTEDMSGs(ALL) LOGONMSG(NO)
  BUILDCHAIN(NO) USERAREALEN(255) IOAREALEN(256,0)
  UCTRAN(NO)
```

IBM 3287-1/2, 3289-1/2

```

DEFINE TYPETERM(VSESCSPA) GROUP(VSETYPE)
  DEVICE(SCSPRINT) TERMMODEL(2)
  SHIPPABLE(NO)
  PAGESIZE(24,80) ALTPAGE(24,80)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(YES)
  DEFSCREEN(24,80) ALTSCREEN(24,80) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(NO) COLOR(NO)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDEDS(NO)
  HILIGHT(NO) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(NO) VALIDATION(NO)
  FORMFEED(YES) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(NO) SOSI(NO) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(256) RECEIVESIZE(256)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(YES) DISCREQ(YES)
  NEPCCLASS(0) SIGNOFF(YES)
  ROUTEDMSGs(ALL) LOGONMSG(NO)
  BUILDCHAIN(NO) USERAREALEN(255) IOAREALEN(256,0)
  UCTRAN(NO)

```

Define Typeterm Models (SNA)

IBM 3287-1C/2C

```
DEFINE TYPETERM(VSESCSPB) GROUP(VSETYPE)
  DEVICE(SCSPRINT) TERMMODEL(2)
  SHIPPABLE(NO)
  PAGESIZE(24,80) ALTPAGE(24,80)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(YES)
  DEFSCREEN(24,80) ALTSCREEN(24,80) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(NO) COLOR(NO)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDEDS(NO)
  HILIGHT(NO) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(NO) VALIDATION(NO)
  FORMFEED(YES) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(NO) SOSI(NO) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(256) RECEIVESIZE(256)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(YES) DISCREQ(YES)
  NEPCLASS(0) SIGNOFF(YES)
  ROUTEDMSGs(ALL) LOGONMSG(NO)
  BUILDCHAIN(NO) USERAREALEN(255) IOAREALEN(256,0)
  UCTRAN(NO)
```

IBM 3290 Screen 62x160

```

DEFINE TYPETERM(VSELU2I) GROUP(VSETYPE)
  DEVICE(LUTYPE2) TERMMODEL(2)
  SHIPPABLE(YES)
  PAGESIZE(24,80) ALTPAGE(0,0)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(NO)
  DEFSCREEN(24,80) ALTSCREEN(62,160) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(YES) COLOR(NO)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDEDS(NO)
  HILIGHT(NO) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(NO) VALIDATION(NO)
  FORMFEED(NO) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(NO) SOSI(NO) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(1536) RECEIVESIZE(1024)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(NO) DISCREQ(YES)
  NEPCCLASS(0) SIGNOFF(YES)
  ROUTEDMSGs(ALL) LOGONMSG(YES)
  BUILDCHAIN(YES) USERAREALEN(255) IOAREALEN(1024,4096)
  UCTRAN(TRANID)

```

Define Typeterm Models (SNA)

Local IBM 5553/57 LUTYPE3 Printer (Attached via 3274-X1A)

```
DEFINE TYPETERM(VSELU3B) GROUP(VSETYPE)
  DEVICE(LUTYPE3) TERMMODEL(2)
  SHIPPABLE(NO)
  PAGESIZE(24,80) ALTPAGE(24,80)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(YES)
  DEFSCREEN(24,80) ALTSCREEN(24,80) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(NO) COLOR(NO)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDEDS(NO)
  HILIGHT(NO) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(YES) VALIDATION(NO)
  FORMFEED(YES) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(YES) SOSI(YES) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(256) RECEIVESIZE(256)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(YES) DISCREQ(YES)
  NEPCLASS(0) SIGNOFF(YES)
  ROUTEDMSGs(ALL) LOGONMSG(NO)
  BUILDCHAIN(YES) USERAREALEN(255) IOAREALEN(256,0)
  UCTRAN(NO)
```


Local IBM 5553/57 SCS Printer (Attached via 3274-X1A)

and

Remote IBM 5553/57 SCS Printer (Attached via 3274-X1C or as Single Station via SDLC Line)

```

DEFINE TYPETERM(VSESCSPC) GROUP(VSETYPE)
  DEVICE(SCSPRINT) TERMMODEL(2)
  SHIPPABLE(NO)
  PAGESIZE(24,80) ALTPAGE(24,80)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(YES)
  DEFSCREEN(24,80) ALTSCREEN(24,80) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(NO) COLOR(NO)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDS(NO)
  HILIGHT(NO) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(YES) VALIDATION(NO)
  FORMFEED(YES) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(YES) SOSI(YES) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(256) RECEIVESIZE(256)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHILIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(YES) DISCREQ(YES)
  NEPCCLASS(0) SIGNOFF(YES)
  ROUTEDMSG(ALL) LOGONMSG(NO)
  BUILDCHAIN(YES) USERAREALEN(255) IOAREALEN(256,0)
  UCTRAN(NO)

```

Define Typeterm Models (SNA)

Remote IBM 5553/57 LUTYPE3 Printer (Attached via 3274-X1C or as Single Station via SDLC Line)

```
DEFINE TYPETERM(VSELU3C) GROUP(VSETYPE)
  DEVICE(LUTYPE3) TERMMODEL(2)
  SHIPPABLE(NO)
  PAGESIZE(24,80) ALTPAGE(24,80)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(YES)
  DEFSCREEN(24,80) ALTSCREEN(24,80) APLKYBD(NO)
  APLTEXT(NO) AUDIBLEALARM(NO) COLOR(NO)
  COPY(NO) DUALCASEKYBD(NO) EXTENDEDDS(NO)
  HIGHLIGHT(NO) KATAKANA(NO) LIGHTPEN(NO)
  MSRCONTROL(NO) OBFORMAT(NO) PARTITIONS(NO)
  PRINTADAPTER(NO) PROGSYMBOLS(YES) VALIDATION(NO)
  FORMFEED(YES) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(NO)
  OUTLINE(YES) SOSI(YES) BACKTRANS(NO)
  CGCSGID(0,0)
  ASCII(NO) SENDSIZE(256) RECEIVESIZE(256)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHIGHLIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(YES) DISCREQ(YES)
  NEPCCLASS(0) SIGNOFF(YES)
  ROUTEDMSGS(ALL) LOGONMSG(NO)
  BUILDCHAIN(YES) USERAREALEN(255) IOAREALEN(256,0)
  UCTRAN(NO)
```

LUTYPE2 Terminals with QUERY=YES

```
DEFINE TYPETERM(VSELU2Q) GROUP(VSETYPE)
  DEVICE(LUTYPE2) TERMMODEL(2)
  SHIPPABLE(YES)
  PAGESIZE(24,80)
  FMHPARM(NO) OBOPERID(NO)
  AUTOPAGE(NO)
  DEFSCREEN(24,80) APLKYBD(NO)
  AUDIBLEALARM(YES)
  COPY(NO) DUALCASEKYBD(NO)
  KATAKANA(NO) LIGHTPEN(NO)
  PRINTADAPTER(NO)
  FORMFEED(NO) HORIZFORM(NO) VERTICALFORM(NO)
  TEXTKYBD(NO) TEXTPRINT(NO) QUERY(ALL)
  ASCII(NO) SENDSIZE(1536) RECEIVESIZE(1024)
  BRACKET(YES)
  ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
  ERRHIGHLIGHT(NO)
  AUTOCONNECT(NO) ATI(YES) TTI(YES)
  CREATESESS(YES) RELREQ(NO) DISCREQ(YES)
  NEPCCLASS(0) SIGNOFF(YES)
  ROUTEDMSGS(ALL) LOGONMSG(YES)
  BUILDCHAIN(YES) USERAREALEN(255) IOAREALEN(1024,4096)
  UCTRAN(TRANID)
```

LUTYPE3 Printer with QUERY=YES

```

DEFINE TYPETERM(VSELU3Q) GROUP(VSETYPE)
DEVICE(LUTYPE3) TERMMODEL(2)
SHIPPABLE(NO)
PAGESIZE(24,80)
FMHPARM(NO) OBOPERID(NO)
AUTOPAGE(YES)
DEFSCREEN(24,80) APLKYBD(NO)
AUDIBLEALARM(NO)
COPY(NO) DUALCASEKYBD(NO)
KATAKANA(NO) LIGHTPEN(NO)
PRINTADAPTER(NO)
FORMFEED(YES) HORIZFORM(NO) VERTICALFORM(NO)
TEXTKYBD(NO) TEXTPRINT(NO) QUERY(ALL)
ASCII(NO) SENDSIZE(256) RECEIVESIZE(256)
BRACKET(YES)
ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
ERRHIGHLIGHT(NO)
AUTOCONNECT(NO) ATI(YES) TTI(YES)
CREATESESS(YES) RELREQ(YES) DISCREQ(YES)
NEPCCLASS(0) SIGNOFF(YES)
ROUTEDMSGS(ALL) LOGONMSG(NO)
BUILDCHAIN(NO) USERAREALEN(255) IOAREALEN(256,0)
UCTRAN(NO)

```

LUTYPE1 SCS Printer with QUERY=YES

```

DEFINE TYPETERM(VSESCSPQ) GROUP(VSETYPE)
DEVICE(SCSPRINT) TERMMODEL(2)
SHIPPABLE(NO)
PAGESIZE(24,80)
FMHPARM(NO) OBOPERID(NO)
AUTOPAGE(YES)
DEFSCREEN(24,80) APLKYBD(NO)
AUDIBLEALARM(NO)
COPY(NO) DUALCASEKYBD(NO)
KATAKANA(NO) LIGHTPEN(NO)
PRINTADAPTER(NO)
FORMFEED(YES) HORIZFORM(NO) VERTICALFORM(NO)
TEXTKYBD(NO) TEXTPRINT(NO) QUERY(ALL)
ASCII(NO) SENDSIZE(256) RECEIVESIZE(256)
BRACKET(YES)
ERRLASTLINE(NO) ERRINTENSIFY(NO) ERRCOLOR(NO)
ERRHIGHLIGHT(NO)
AUTOCONNECT(NO) ATI(YES) TTI(YES)
CREATESESS(YES) RELREQ(YES) DISCREQ(YES)
NEPCCLASS(0) SIGNOFF(YES)
ROUTEDMSGS(ALL) LOGONMSG(NO)
BUILDCHAIN(NO) USERAREALEN(255) IOAREALEN(256,0)
UCTRAN(NO)

```

Default Logon Mode Table IESINCLM

```
* /* START OF SPECIFICATIONS ****
*
*01*  MODULE-NAME = IESINCLM
*
*01*  DESCRIPTIVE-NAME = DEFAULT LOGON MODE TABLE SUPPLIED FOR VSE/ESA
*
*01*  COPYRIGHT =   SEE ABOVE
*
*01*  STATUS = VERSION VSE/ESA 1.1.0
*
*01*  FUNCTION = THE PURPOSE OF THIS TABLE IS TO PROVIDE THE USER WITH
*                A DEFAULT TABLE PROVIDING SUPPORT FOR THE DEVICES LISTED BELOW:
*
*                3820 SNA PRINTER - REMOTELY ATTACHED
*                3820 SNA PRINTER - S/370 CHANNEL ATTACHED
*                3812/16 SNA PRINTER - REMOTELY ATTACHED
*                3812/16 SNA PRINTER - LOCALLY ATTACHED
*
*                3270 LOCAL NON-SNA DEVICES
*                3270 SNA DEVICES
*
*01*  NOTES = NONE
*
*02*  CHARACTER-CODE-DEPENDENCIES = NONE
*
*02*  DEPENDENCIES = NONE
*
*02*  RESTRICTIONS = NONE
*
*02*  REGISTER-CONVENTIONS = NONE
*
*02*  PATCH-LABEL = NONE
*
*01*  MODULE-TYPE = MODULE, NON EXECUTABLE
*
*02*  PROCESSOR = ASSEMBLER
*
*02*  MODULE-SIZE = RES: CHOOSE: (9) BYTES,
*                  COMMENTS: ENTER SIZE CONSTRAINTS IF KNOWN,
*                  OTHERWISE LEAVE;
*
*02*  ATTRIBUTES = REFRESHABLE, NO EXECUTABLE CODE
*
*03*  RELOCATE = PAGEABLE
*
*03*  MODE = PROBLEM-PROGRAM
*
*03*  PROTECTION = USER-KEY
```

Figure 123 (Part 1 of 9). Default Logon Mode Table IESINCLM

```

*
*03*      SPECIAL-PSW-SETTING = NONE
*
*01*  ENTRY = IESINCLM
*
*02*      PURPOSE = SEE FUNCTION
*
*02*      LINKAGE = NOT APPLICABLE
*
*02*      INPUT = NONE
*
*03*      REGISTERS-PAVED-AND-RESTORED = NOT APPLICABLE
*
*03*      REGISTERS-INPUT = NOT APPLICABLE
*
*02*      OUTPUT = NONE
*
*03*      REGISTERS-OUTPUT = NOT APPLICABLE
*
*03*      REGISTERS-NOT-CORRUPTED = ALL
*
*01*  EXIT-NORMAL = NOT APPLICABLE
*
*01*  EXIT-ERROR = NOT APPLICABLE
*
*01*  EXTERNAL-REFERENCES = NONE
*
*02*      ROUTINES = NONE
*
*03*      LINKAGE = NOT APPLICABLE
*
*03*      REGISTERS-PASSED = NOT APPLICABLE
*
*03*      REGISTERS-RETURNED = NOT APPLICABLE
*
*02*      DATA-SETS = NONE
*
*02*      DATA-AREA = NONE
*
*02*      CONTROL-BLOCKS-SYSTEM = NONE
*
*02*      CONTROL-BLOCKS-VTAM = NONE
*
*01*  TABLES = NONE
*
*01*  MACROS = MODETAB,MODEENT,MODEEND
*
*01*  CHANGE-ACTIVITY =
*      11/19/90 SP3272ES,SP3273ES,SP3290ES,SP3272EN,SP3273EN,SP3290EN
*      CHANGED TO FIT WITH CORRESPONDING CICS TYPETERMS
*
****  END OF SPECIFICATIONS ***/
      EJECT

```

Figure 123 (Part 2 of 9). Default Logon Mode Table IESINCLM

Logon Mode Table IESINCLM

```

IESINCLM MODETAB
  EJECT
  TITLE 'SP3820'
*****
*
*          3820 LOGICAL UNIT - REMOTELY ATTACHED
*
*****
SP3820  MODEENT LOGMODE=SP3820,FMPROF=X'13',TSPROF=X'07',          X
        PRIPROT=X'B0',SECPROT=X'B0',COMPROT=X'D0B1',          X
        RUSIZES=X'8585',PSERVIC=X'06020000000000000002000',    X
        PSNDPAC=X'03',SRCVPAC=X'03',SSNDPAC=X'00'
  TITLE 'SP3820C'
*****
*
*          3820 LOGICAL UNIT - S/370 CHANNEL ATTACHED
*
*****
SP3820C MODEENT LOGMODE=SP3820C,FMPROF=X'13',TSPROF=X'07',      X
        PRIPROT=X'B0',SECPROT=X'B0',COMPROT=X'D0B1',          X
        RUSIZES=X'85C7',PSERVIC=X'06020000000000000002000',    X
        PSNDPAC=X'03',SRCVPAC=X'03',SSNDPAC=X'00'
  TITLE 'SP3812'
*****
*
*          3812/16 LOGICAL UNIT - REMOTELY ATTACHED
*
*****
SP3812  MODEENT LOGMODE=SP3812,FMPROF=X'03',TSPROF=X'03',      X
        PRIPROT=X'B1',SECPROT=X'B0',COMPROT=X'7080',          X
        RUSIZES=X'8585',PSERVIC=X'014000010000000001000000',    X
        PSNDPAC=X'03',SRCVPAC=X'03',SSNDPAC=X'00'
  TITLE 'SP3812C'
*****
*
*          3812/16 LOGICAL UNIT - LOCALLY ATTACHED
*
*****
SP3812C MODEENT LOGMODE=SP3812C,FMPROF=X'03',TSPROF=X'03',      X
        PRIPROT=X'B1',SECPROT=X'B0',COMPROT=X'7080',          X
        RUSIZES=X'85C7',PSERVIC=X'014000010000000001000000',    X
        PSNDPAC=X'02',SRCVPAC=X'02',SSNDPAC=X'00'

```

Figure 123 (Part 3 of 9). Default Logon Mode Table IESINCLM

```

      TITLE 'SP32702N'
*****
*
*          LOGMODE TABLE ENTRY FOR NON-SNA 3270 DEVICES          *
*          WITH PRIMARY SCREEN SIZE 24 X 80 (1920)                  *
*          NO ALTERNATE SCREEN SIZE DEFINED                         *
*                                                                    *
*****
SP32702N MODEENT LOGMODE=SP32702N,FMPROF=X'02',TSPROF=X'02',PRIPROT=X'7*
                1',SECPROT=X'40',COMPROT=X'2000',RUSIZES=X'0000',PSERVIC*
                =X'000000000000185000007E00'
      TITLE 'SP32703N'
*****
*
*          LOGMODE TABLE ENTRY FOR NON-SNA 3270 DEVICES          *
*          WITH PRIMARY SCREEN SIZE 24 X 80 (1920)                  *
*          AND ALTERNATE SCREEN SIZE 32 X 80 (2560)                 *
*                                                                    *
*****
SP32703N MODEENT LOGMODE=SP32703N,FMPROF=X'02',TSPROF=X'02',PRIPROT=X'7*
                1',SECPROT=X'40',COMPROT=X'2000',RUSIZES=X'0000',PSERVIC*
                =X'000000000000185020507F00'
      TITLE 'SP32704N'
*****
*
*          LOGMODE TABLE ENTRY FOR NON-SNA 3270 DEVICES          *
*          WITH PRIMARY SCREEN SIZE 24 X 80 (1920)                  *
*          AND ALTERNATE SCREEN SIZE 43 X 80 (3440)                 *
*                                                                    *
*****
SP32704N MODEENT LOGMODE=SP32704N,FMPROF=X'02',TSPROF=X'02',PRIPROT=X'7*
                1',SECPROT=X'40',COMPROT=X'2000',RUSIZES=X'0000',PSERVIC*
                =X'00000000000018502B507F00'
      TITLE 'SP32705N'
*****
*
*          LOGMODE TABLE ENTRY FOR NON-SNA 3270 DEVICES          *
*          WITH PRIMARY SCREEN SIZE 24 X 80 (1920)                  *
*          AND ALTERNATE SCREEN SIZE 27 X 132 (3564)                *
*                                                                    *
*****
SP32705N MODEENT LOGMODE=SP32705N,FMPROF=X'02',TSPROF=X'02',PRIPROT=X'7*
                1',SECPROT=X'40',COMPROT=X'2000',RUSIZES=X'0000',PSERVIC*
                =X'00000000000018501B847F00'

```

Figure 123 (Part 4 of 9). Default Logon Mode Table IESINCLM

Logon Mode Table IESINCLM

```

      TITLE 'SP3272QN'
*****
*
*      LOGMODE TABLE ENTRY FOR NON-SNA 3270 DEVICES
*      WITH PRIMARY SCREEN SIZE 24 X 80 (1920)
*      ALTERNATE SCREEN SIZE WILL BE QUERIED
*      WITH EXTENDED DATA STREAM
*
*****
SP3272QN MODEENT LOGMODE=SP3272QN,FMPROF=X'02',TSPROF=X'02',PRIPROT=X'7*
                1',SECPROT=X'40',COMPROT=X'2000',RUSIZES=X'0000',PSERVIC*
                =X'0080000000001850000000300'
      TITLE 'SP3272EN'
*****
*
*      LOGMODE TABLE ENTRY FOR NON-SNA 3270 DEVICES
*      WITH PRIMARY SCREEN SIZE 24 X 80 (1920)
*      NO ALTERNATE SCREEN SIZE DEFINED
*      WITH EXTENDED DATA STREAM
*
*****
SP3272EN MODEENT LOGMODE=SP3272EN,FMPROF=X'02',TSPROF=X'02',PRIPROT=X'7*
                1',SECPROT=X'40',COMPROT=X'2000',RUSIZES=X'0000',PSERVIC*
                =X'008000000000185018507F00'
      TITLE 'SP3273EN'
*****
*
*      LOGMODE TABLE ENTRY FOR NON-SNA 3270 DEVICES
*      WITH PRIMARY SCREEN SIZE 24 X 80 (1920)
*      AND ALTERNATE SCREEN SIZE 32 X 80 (2560)
*      WITH EXTENDED DATA STREAM
*
*****
SP3273EN MODEENT LOGMODE=SP3273EN,FMPROF=X'02',TSPROF=X'02',PRIPROT=X'7*
                1',SECPROT=X'40',COMPROT=X'2000',RUSIZES=X'0000',PSERVIC*
                =X'008000000000185020507F00'
      TITLE 'SP3290EN'
*****
*
*      LOGMODE TABLE ENTRY FOR NON-SNA 3270 DEVICES
*      WITH PRIMARY SCREEN SIZE 24 X 80 (1920)
*      AND ALTERNATE SCREEN SIZE 62 X 160 (9920)
*      WITH EXTENDED DATA STREAM
*
*****
SP3290EN MODEENT LOGMODE=SP3290EN,FMPROF=X'02',TSPROF=X'02',PRIPROT=X'7*
                1',SECPROT=X'40',COMPROT=X'2000',RUSIZES=X'0000',PSERVIC*
                =X'00800000000018503EA07F00'

```

Figure 123 (Part 5 of 9). Default Logon Mode Table IESINCLM

```

      TITLE 'SPDSCPRT'
*****
*
*          LOGMODE TABLE ENTRY FOR NON-SNA 3270
*          TERMINAL PRINTERS
*
*****
SPDSCPRT MODEENT LOGMODE=SPDSCPRT,FMPROF=X'02',TSPROF=X'02',PRIPROT=X'7*
                1',SECPROT=X'40',COMPROT=X'2000',RUSIZES=X'0000',PSERVIC*
                =X'000000000000185018500200'
      TITLE 'SP32702S'
*****
*
*          LOGMODE TABLE ENTRY FOR SNA 3270 DEVICES
*          WITH PRIMARY SCREEN SIZE 24 X 80 (1920)
*          NO ALTERNATE SCREEN SIZE DEFINED
*
*****
SP32702S MODEENT LOGMODE=SP32702S,FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B*
                1',SECPROT=X'90',COMPROT=X'3080',RUSIZES=X'85C7',PSERVIC*
                =X'020000000000185000007E00'
      TITLE 'SP32703S'
*****
*
*          LOGMODE TABLE ENTRY FOR SNA 3270 DEVICES
*          WITH PRIMARY SCREEN SIZE 24 X 80 (1920)
*          AND ALTERNATE SCREEN SIZE 32 X 80 (2560)
*
*****
SP32703S MODEENT LOGMODE=SP32703S,FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B*
                1',SECPROT=X'90',COMPROT=X'3080',RUSIZES=X'85C7',PSERVIC*
                =X'020000000000185020507F00'
      TITLE 'SP32704S'
*****
*
*          LOGMODE TABLE ENTRY FOR SNA 3270 DEVICES
*          WITH PRIMARY SCREEN SIZE 24 X 80 (1920)
*          AND ALTERNATE SCREEN SIZE 43 X 80 (3440)
*
*****
SP32704S MODEENT LOGMODE=SP32704S,FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B*
                1',SECPROT=X'90',COMPROT=X'3080',RUSIZES=X'85C7',PSERVIC*
                =X'02000000000018502B507F00'

```

Figure 123 (Part 6 of 9). Default Logon Mode Table IESINCLM

Logon Mode Table IESINCLM

```
TITLE 'SP32705S'
*****
*
*          LOGMODE TABLE ENTRY FOR SNA 3270 DEVICES          *
*          WITH PRIMARY SCREEN SIZE 24 X 80 (1920)              *
*          AND ALTERNATE SCREEN SIZE 27 X 132 (3564)            *
*
*****
SP32705S MODEENT LOGMODE=SP32705S,FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B*
              1',SECPROT=X'90',COMPROT=X'3080',RUSIZES=X'85C7',PSERVIC*
              =X'02000000000018501B847F00'
TITLE 'SP3272QS'
*****
*
*          LOGMODE TABLE ENTRY FOR SNA 3270 DEVICES          *
*          WITH PRIMARY SCREEN SIZE 24 X 80 (1920)              *
*          ALTERNATE SCREEN SIZE WILL BE QUERIED               *
*          WITH EXTENDED DATA STREAM                          *
*
*****
SP3272QS MODEENT LOGMODE=SP3272QS,FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B*
              1',SECPROT=X'90',COMPROT=X'3080',RUSIZES=X'85C7',PSERVIC*
              =X'028000000000185000000300'
TITLE 'SP3272ES'
*****
*
*          LOGMODE TABLE ENTRY FOR SNA 3270 DEVICES          *
*          WITH PRIMARY SCREEN SIZE 24 X 80 (1920)              *
*          NO ALTERNATE SCREEN SIZE DEFINED                     *
*          WITH EXTENDED DATA STREAM                          *
*
*****
SP3272ES MODEENT LOGMODE=SP3272ES,FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B*
              1',SECPROT=X'90',COMPROT=X'3080',RUSIZES=X'85C7',PSERVIC*
              =X'028000000000185018507F00'
TITLE 'SP3273ES'
*****
*
*          LOGMODE TABLE ENTRY FOR SNA 3270 DEVICES          *
*          WITH PRIMARY SCREEN SIZE 24 X 80 (1920)              *
*          AND ALTERNATE SCREEN SIZE 32 X 80 (2560)            *
*          WITH EXTENDED DATA STREAM                          *
*
*****
SP3273ES MODEENT LOGMODE=SP3273ES,FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B*
              1',SECPROT=X'90',COMPROT=X'3080',RUSIZES=X'85C7',PSERVIC*
              =X'028000000000185020507F00'
```

Figure 123 (Part 7 of 9). Default Logon Mode Table IESINCLM

```

      TITLE 'SP3290ES'
*****
*
*      LOGMODE TABLE ENTRY FOR SNA 3270 DEVICES
*      WITH PRIMARY SCREEN SIZE 24 X 80 (1920)
*      AND ALTERNATE SCREEN SIZE 62 X 160 (9920)
*      WITH EXTENDED DATA STREAM
*
*****
SP3290ES MODEENT LOGMODE=SP3290ES,FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B*
                1',SECPROT=X'90',COMPROT=X'3080',RUSIZES=X'85C7',PSERVIC*
                =X'02800000000018503EA07F00'
      TITLE 'SPSCSPRT'
*****
*
*      LOGMODE TABLE ENTRY FOR SNA 3270
*      TERMINAL PRINTERS IN SCS-MODE
*
*****
SPSCSPRT MODEENT LOGMODE=SPSCSPRT,FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B*
                1',SECPROT=X'90',COMPROT=X'3080',RUSIZES=X'8585',PSERVIC*
                =X'01000000E100000000000000',
                PSNDPAC=X'01',SRCVPAC=X'01'
      TITLE 'SPSCSPRQ'
*****
*
*      LOGMODE TABLE ENTRY FOR SNA 3270
*      TERMINAL PRINTERS IN SCS-MODE
*      WITH QUERY SUPPORT
*
*****
SPSCSPRQ MODEENT LOGMODE=SPSCSPRQ,FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B*
                1',SECPROT=X'90',COMPROT=X'3080',RUSIZES=X'8585',PSERVIC*
                =X'01000001E100000000000000',
                PSNDPAC=X'01',SRCVPAC=X'01'
      TITLE 'SPLU3PRT'
*****
*
*      LOGMODE TABLE ENTRY FOR SNA 3270
*      TERMINAL PRINTERS IN LU3-MODE
*
*****
SPLU3PRT MODEENT LOGMODE=SPLU3PRT,FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B*
                1',SECPROT=X'90',COMPROT=X'3080',RUSIZES=X'8585',PSERVIC*
                =X'03000000000018502B507F00'

```

Figure 123 (Part 8 of 9). Default Logon Mode Table IESINCLM

Logon Mode Table IESINCLM

```

TITLE 'SPLU3PRQ'
*****
*
*          LOGMODE TABLE ENTRY FOR SNA 3270
*          TERMINAL PRINTERS IN LU3-MODE
*          WITH QUERY SUPPORT
*
*****
SPLU3PRQ MODEENT LOGMODE=SPLU3PRQ,FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B*
          1',SECPROT=X'90',COMPROT=X'3080',RUSIZES=X'8585',PSERVIC*
          =X'03800000000018502B500000'
TITLE 'SNASVCMG'
*****
*
*          LOGMODE TABLE ENTRY FOR CICS ISC
*          FOR LUTYPE 6.2 LINKS
*
*****
SNASVCMG MODEENT LOGMODE=SNASVCMG
TITLE 'SNALU62'
*****
*
*          LOGMODE TABLE ENTRY FOR CICS ISC
*          FOR LUTYPE 6.2 LINKS
*          THE 2ND MODE-ENTRY HAS TO BE DEFINED IN MODESET RESP
*          THE SESSION DEFINITION FOR RDO (PARAMETER MODENAME=
*          SNALU62)
*
*****
SNALU62 MODEENT LOGMODE=SNALU62
TITLE 'RDTSLU62'
*****
*
*          LOGMODE TABLE ENTRIES FOR RDTs
*          FOR LUTYPE 6.2 LINKS
*
*****
#BATCH EQU *
MODEENT LOGMODE=#BATCH,FMPROF=X'13',TSPROF=X'07',PRIPROT=X'B0', *C
SECPROT=X'B0',COMPROT=X'D0B1',RUSIZES=X'8787', *C
SSNDPAC=X'00',SRCVPAC=X'00',PSNDPAC=X'00', *C
TYPE=0, *C
PSERVIC=X'060200000000000000002F00'
#INTER EQU *
MODEENT LOGMODE=#INTER,FMPROF=X'13',TSPROF=X'07',PRIPROT=X'B0', *C
SECPROT=X'B0',COMPROT=X'D0B1',RUSIZES=X'8787', *C
SSNDPAC=X'00',SRCVPAC=X'00',PSNDPAC=X'00', *C
TYPE=0, *C
PSERVIC=X'060200000000000000002F00'
*
MODEEND
END , END OF IESINCLM

```

Figure 123 (Part 9 of 9). Default Logon Mode Table IESINCLM

Glossary

This glossary includes terms and definitions related primarily to IBM VSE/ESA. If you do not find the term you are looking for, refer to the index of this book or to the *IBM Dictionary of Computing* New York: McGraw Hill, 1994.

The glossary includes definitions with:

- Symbol * where there is a one-to-one copy from the IBM Dictionary of Computing.
- Symbol (A) from the *American National Dictionary for Information Processing Systems*, copyright 1982 by the Computer and Business Equipment Manufacturers Association (CBEMA). Copies may be purchased from the American National Standards Institute, 1430 Broadway, New York, New York 10018. Definitions are identified by the symbol (A) after the definition.
- Symbols (I) or (T) from the *ISO Vocabulary - Information Processing* and the *ISO Vocabulary - Office Machines*, developed by the International Organization for Standardization, Technical Committee 97, Subcommittee 1. Definitions of published segments of the vocabularies are identified by the symbol (I) after the definition; definitions from draft international standards, draft proposals, and working papers in development by the ISO/TC97/SC1 vocabulary subcommittee are identified by the symbol (T) after the definition, indicating final agreement has not yet been reached among participating members.

The following cross-references are used:

- Contrast with. This refers to a term that has an opposed or substantively different meaning.
- Synonym for. This indicates that the term has the same meaning as a preferred term, which is defined in its proper place in the dictionary.
- Synonymous with. This is a backward reference from a defined term to all other terms that have the same meaning.
- See. This refers the reader to multiple-word terms that have the same last word.
- See also. This refers the reader to related terms that have a related, but not synonymous, meaning.

ACB. (1) In VTAM, access method control block.
(2) In NCP, adapter control block.

ACB name. (1) The name of an ACB macro instruction. (2) A name specified in the ACBNAME parameter of an VTAM APPL statement. Contrast with *network name*.

access method control block (ACB). A control block that links an application program to VSE/VSAM or VTAM.

ACF (Advanced Communications Function). A group of IBM licensed programs (principally VTAM, TCAM, NCP, and SSP) that use the concepts of Systems Network Architecture (SNA), including distribution of function and resource sharing.

ACF/NCP. Advanced Communications Function for the Network Control Program. Synonym for *NCP*.

ACF/SSP. Advanced Communications Function for the System Support Programs. Synonym for *SSP*.

ACF/VTAM. Advanced Communications Function for the Virtual Telecommunications Access Method. Synonym for *VTAM*.

activate. To make a resource of a node ready to perform the functions for which it was designed. Contrast with *deactivate*.

active. (1) The state a resource is in when it has been activated and is operational. Contrast with *inactive*, *pending*, and *inoperative*. (2) Pertaining to a major or minor node that has been activated by VTAM. Most resources are activated as part of VTAM start processing or as the result of a VARY ACT command.

adapter. Hardware card that allows a device, such as a PC, to communicate with another device, such as a monitor, a printer, or other I/O device.

adapter control block (ACB). In NCP, a control block that contains line control information and the states of I/O operations for BSC lines, SS lines, or SDLC links.

address. (1) The location in the storage of a computer where data are stored. (2) In data communication, the unique code assigned to every device or workstation connected to a network.

address space. A range of up to two gigabytes of contiguous virtual storage addresses that the system creates for a user. Unlike a data space, an address space contains user data **and** programs, as well as system data and programs, some of which are common to all address spaces. Instructions execute in an address space (not a data space). Contrast with *data space*.

Advanced Communications Function (ACF). A group of IBM licensed programs (principally VTAM, TCAM, NCP, and SSP) that use the concepts of

Glossary

Systems Network Architecture (SNA), including distribution of function and resource sharing.

advanced peer-to-peer networking (APPN*). A communications feature that routes data in a network between several APPC systems that are not directly attached.

advanced program-to-program communication (APPC). A synonym for logical unit (LU) 6.2 and its implementations.

APAR (Authorized Program Analysis Report). A report of a problem caused by a suspected defect in a current release of a program.

APPC (advanced program-to-program communication). A synonym for logical unit (LU) 6.2 and its implementations.

application program. (1) A program written for or by a user that applies to the user's work. (2) A program used to connect and communicate with stations in a network, enabling users to perform application-oriented activities.

application program major node. A group of application program minor nodes. In the VTAM definition library, it is a member, book, or file that contains one or more APPL statements, which represent application programs. In OS/390, it is a member of the library; in VSE, it is a book; and in VM, it is a CMS* file of filetype VTAMLST.

APPN (advanced peer-to-peer networking). A communications feature that routes data in a network between several APPC systems that are not directly attached.

*** ASCII (American National Standard Code for Information Interchange)**. The standard code, using a coded character set consisting of 7 bit coded characters (8 bits including parity check), used for information interchange among data processing systems, data communication systems, and associated equipment. The ASCII set consists of control characters and graphic characters.(A)

ASI (automated system initialization) procedure. A set of control statements which specifies values for an automatic system initialization.

assemble. To translate a program from assembler language into object code.

assembler. A computer program used to assemble. Synonymous with assembly program.

assembler language. A programming language whose instructions are usually in one-to-one

correspondence with machine instructions and allows to write macros.

*** asynchronous transfer mode (ATM)**. A transfer mode in which the information is organized into cells; it is asynchronous in the sense that the recurrence of cells containing information from an individual user is not necessarily periodic. ATM is specified in international standards such as ATM Forum UNI 3.1.

ATM. See asynchronous transfer mode.

attention routine. A routine of the system that receives control when the operator presses the Attention key. The routine sets up the console for the input of a command, reads the command, and initiates the system service requested by the command.

authorized program analysis report (APAR). A report of a problem caused by a suspected defect in a current release of a program.

*** automated system initialization (ASI)**. A function that allows control information for system startup to be cataloged for automatic retrieval during system startup.

*** autostart**. A facility that starts up VSE/POWER with little or no operator involvement.

*** backup copy**. A copy, usually of a file or a library member, that is kept in case the original file or library member is unintentionally changed or destroyed.

batch processing. (1) Serial processing of computer programs. (2) Pertaining to the technique of processing a set of computer programs in such a way that each is completed before the next program of the set is started. (A)

batch program. A program that is processed in series with other programs and therefore normally processes data without user interaction.

binary synchronous communication (BSC). (1) Communication using binary synchronous line discipline. (2) A uniform procedure, using a standardized set of control characters and control character sequences, for synchronous transmission of binary-coded data between stations.

bits per second (bps). In serial transmission, the instantaneous bit speed with which a device or channel transmits a character.

boundary function. (1) A capability of a subarea node to provide protocol support for attached peripheral nodes, such as: (a) interconnecting subarea path control and peripheral path control elements, (b) performing session sequence numbering for low-function peripheral nodes, and (c) providing session-level pacing support. (2) The component that

provides these capabilities. See also *boundary node*, *network addressable unit (NAU)*, *subarea node*.

boundary node. (1) A subarea node with boundary function. See *subarea node*. See also *boundary function*. (2) The programming component that performs FID2 (format identification type 2) conversion, channel data link control, pacing, and channel or device error recovery procedures for a locally attached station. These functions are similar to those performed by a network control program for an NCP-attached station.

*** bps (bits per second).** In serial transmission, the instantaneous bit speed with which a device or channel transmits a character.

BSC (binary synchronous communication).

(1) Communication using binary synchronous line discipline. (2) A uniform procedure, using a standardized set of control characters and control character sequences, for synchronous transmission of binary-coded data between stations.

BTAM-ES. (Basic Telecommunication Access Method Extended Storage) An IBM-supplied telecommunication access method. It permits read and write communication with remote devices.

buffer. An area of storage temporarily reserved for input or output operations; an area into which data is read or from which data is written.

carrier. On broadband networks, a continuous frequency signal that can be modulated with an information-carrying signal.

catalog. (1) A directory of files and libraries, with reference to their locations. A catalog may contain other information such as the types of devices in which the files are stored, passwords, blocking factors.(1) (A) (2) To store a library member such as a phase, module, or book in a sublibrary.

CDRM (cross-domain resource manager). In VTAM, the function in the system services control point (SSCP) that controls initiation and termination of cross-domain sessions.

CDRSC (cross-domain resource). A resource owned by a cross-domain resource manager (CDRM) in another domain but known by the CDRM in this domain by network name and associated CDRM.

channel. * A path along which signals can be sent, for example, data channel, output channel.

*** channel adapter.** A communication controller hardware unit used to attach the controller to a data channel.

*** channel-attached.** Pertaining to attachment of devices directly by data channels (I/O channels) to a computer. Contrast with *link-attached*. Synonymous with *locally attached*.

channel-attachment major node. (1) A major node that includes an NCP that is channel-attached to a data host. (2) A major node that may include minor nodes that are the line groups and lines that represent a channel attachment to an adjacent (channel-attached) host. (3) In VM or VSE operating systems, a major node that may include minor nodes that are resources (host processors, NCPs, line groups, lines, SNA physical units and logical units, cluster controllers, and terminals) attached through a communication adapter.

channel-to-channel attachment (CTCA). An extension of VSE/POWER's networking function that allows data to be exchanged between two virtual VSE machines under control of VM/SP.

character-coded. Synonym for *unformatted*.

CICS system definition (CSD) file. A component of CICS resource definition online (RDO). It keeps a permanent record of resource information, independently of the active CICS system.

CICS TS (Customer Information Control System Transaction Server). An IBM program that controls online communication between terminal users and a data base. Transactions entered at remote terminals are processed concurrently by user-written application programs. The program includes facilities for building, using, and servicing data bases.

class. In VSE/POWER, a group of jobs that either come from the same input device or go to the same output device.

CLIST (command list). In the NetView program, a sequential list of commands and control statements that is assigned a name. When the name is invoked (as a command) the commands in the list are executed.

cluster controller. A device that can control the input/output operations of more than one device connected to it. A cluster controller may be controlled by a program stored and executed in the unit; for example, the IBM 3601 Finance Communication Controller. Or it may be controlled entirely by hardware; for example, the IBM 3272 Control Unit.

CNM (communication network management). The process of designing, installing, operating, and managing the distribution of information and controls among end users of communication systems.

*** communication adapter.** A circuit card with associated software that enables a processor, controller, or other device to be connected to a network.

Glossary

command list (CLIST). In the NetView program, a sequential list of commands and control statements that is assigned a name. When the name is invoked (as a command) the commands in the list are executed.

communication controller. A type of communication control unit whose operations are controlled by one or more programs stored and executed in the unit; for example, the IBM 3725 Communication Controller. It manages the details of line control and the routing of data through a network.

communication line. Deprecated term for *telecommunication line* and *transmission line*.

communication network management (CNM). The process of designing, installing, operating, and managing the distribution of information and controls among end users of communication systems.

component. 1. Hardware or software that is part of a computer system. 2. A functional part of a product, identified by a component identifier. 3. In VSE/VSAM, a named, cataloged group of stored records, such as the data component or index component of a key-sequenced file or alternate index.

configuration. The devices and programs that make up a system, subsystem, or network.

connection. Synonym for *physical connection*.

control block. An area within a program or a routine defined for the purpose of storing and maintaining control information.

control program. A program to schedule and supervise the running of programs in a system.

control unit. See *cluster controller*

converted command. An intermediate form of a character-coded command produced by VTAM through use of an unformatted system services definition table. The format of a converted command is fixed; the unformatted system services definition table must be constructed in such a manner that the character-coded command (as entered by a logical unit) is converted into the predefined, converted command format. See also *unformatted*.

*** corrective service.** The installation of a PTF or an APAR fix that corrects a specific problem.

cross-domain. In SNA, pertaining to control of resources involving more than one domain.

cross-domain resource (CDRSC). A resource owned by a cross-domain resource manager (CDRM) in another domain but known by the CDRM in this domain by network name and associated CDRM.

cross-domain resource manager (CDRM). In VTAM, the function in the system services control point (SSCP) that controls initiation and termination of cross-domain sessions.

CSD (CICS system definition) file. A component of CICS resource definition online (RDO). It keeps a permanent record of resource information, independently of the active CICS system.

CTCA (channel-to-channel attachment). An extension of VSE/POWER's networking function that allows data to be exchanged between two virtual VSE machines under control of VM/SP.

Customer Information Control System/VSE (CICS/VSE). An IBM program that controls online communication between terminal users and a data base. Transactions entered at remote terminals are processed concurrently by user-written application programs. The program includes facilities for building, using, and servicing data bases.

CUT (Control Unit Terminal) mode. IBM PCs operating in CUT mode are defined to VSE/ESA like a 3278-2 or 3279-2A display station. No special features are required for the CICS Terminal Control Table (DFHTCT).

DASD conservation option (DCO). A NetView installation option, available on the VM operating system, that allows the NetView program to be installed without the online help facility and hardware monitor data presentation panels.

DASD sharing. An option that lets independent computer systems use common data on shared disk devices.

data circuit-terminating equipment (DCE). The equipment installed at the user's premises that provides all functions required to establish, maintain, and terminate a connection, and the signal conversion and coding between the data terminal equipment (DTE) and the line. The DCE may be separate equipment or an integral part of other equipment.(T)

data communication. The transmission and reception of data.(A)

data entry panel. A panel in which the user communicates with the system by filling in one or more fields. See also *panel* and *selection panel*.

*** Data Interfile Transfer, Testing and Operations utility (DITTO).** An IBM program that provides file to file services for card I/O, tape, and disk devices.

data link. In SNA, synonym for *link*.

data set. See *file*.

data space. A range of up to two gigabytes of contiguous virtual storage addresses that a program can directly manipulate through ESA/370* instructions. Unlike an address space, a data space can hold only user data; it does not contain shared areas, system data or programs. Instructions do not execute in a data space, although a program can reside in a data space as non-executable code. Contrast with *address space*.

data terminal equipment (DTE). That part of a data station that serves as a data source, data link, or both, and provides for the data communication control function according to protocols.(T)

DCO (DASD conservation option). A NetView installation option, available on the VM operating system, that allows the NetView program to be installed without the online help facility and hardware monitor data presentation panels.

DCE (data circuit-terminating equipment). The equipment installed at the user's premises that provides all functions required to establish, maintain, and terminate a connection, and the signal conversion and coding between the data terminal equipment (DTE) and the line. The DCE may be separate equipment or an integral part of other equipment.(T)

deactivate. To take a resource of a node out of service, rendering it inoperable, or to place it in a state in which it cannot perform the functions for which it was designed. Contrast with *activate*.

definition statement. (1) In VTAM, the statement that describes an element of the network. (2) In NCP, a type of instruction that defines a resource to the NCP. See also *macro instruction*.

dependent LU. Any logical unit (LU) that receives an ACTLU over a link. Such LUs can act only as secondary logical units (SLUs) and can have only one LU-LU session at a time. Contrast with *independent LU*.

device address. (1) The identification of an input/output device by its channel and unit number. (2) In data communication, the identification of any device to which data can be sent or from which data can be received.

*** Device Support Facilities.** An IBM supplied SCP for performing operations on disk volumes so that they can be accessed by IBM and user programs. Examples of these operations are initializing a disk volume and assigning an alternate track.

DFT mode (distributed function terminal mode). A mode of terminal operation that allows simultaneous host sessions by the use of screen windows.

dialog. (1) In an interactive system, a series of related inquiries and responses similar to a conversation between two people. (2) For VSE/ESA, a set of panels that can be used to complete a specific task, defining a file, for example.

dialog manager. The program component of VSE/ESA that provides for ease of communication between user and system.

dial-in. Refers to the direction in which a switched connection is requested by any node or terminal other than the receiving host or an NCP.

dial-out. Refers to the direction in which a switched connection is requested by a host or an NCP.

display station. A display screen with attached keyboard for communication with the system or a network. See also *terminal*.

disposition. A means of indicating to VSE/POWER how job input and output is to be handled. A job may, for example, be deleted or kept after processing.

distributed function. The use of programmable terminals, controllers, and other devices to perform minor data processing operations.

distributed function terminal mode (DFT mode). A mode of terminal operation that allows simultaneous host sessions by the use of screen windows.

*** distribution tape.** A magnetic tape that contains, for example, a preconfigured operating system like VSE/ESA. This tape is shipped to the customer for program installation.

*** DITTO (Data Interfile Transfer, Testing and Operations) utility.** An IBM program that provides file to file services for card I/O, tape, and disk devices.

domain. (1) An access method, its application programs, communication controllers, connecting lines, modems, and attached terminals. (2) In SNA, a system services control point (SSCP) and the physical units (PUs), logical units (LUs), links, link stations, and all the associated resources that the SSCP has the ability to control by means of activation requests and deactivation requests. See also *single-domain network* and *multiple-domain network*.

domain operator. In a multiple-domain network, the person or program that controls the operation of the resources controlled by one system services control point. Contrast with *network operator* (2).

DTE (data terminal equipment). That part of a data station that serves as a data source, data link, or both, and provides for the data communication control function according to protocols.(T)

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dummy device. A device address with no real I/O device behind it. Input and output for that device address are spooled on disk.

duplex. In data communication, pertaining to a simultaneous two-way independent transmission in both directions. Synonymous with *full duplex*. Contrast with *half duplex*.

element address. In SNA, a value in the element address field of the network address identifying a specific resource within a subarea. See *subarea address*.

element address. In SNA, a value in the element address field of the network address identifying a specific resource within a subarea. See *subarea address*.

emulation. The use of programming techniques and special machine features that permit a computer system to execute programs written for another system or for the use of I/O devices different from those that are available.

Emulation Program (EP). An IBM control program that allows a channel-attached 3705 or 3725 communication controller to emulate the functions of an IBM 2701 Data Adapter Unit, an IBM 2702 Transmission Control, or an IBM 2703 Transmission Control. See also *network control program*.

end user. (1) A person who makes use of an application program. (2) In SNA, the ultimate source or destination of user data flowing through an SNA network. May be an application program or a terminal operator.

Enterprise Systems Architecture* (ESA). See *ESA/370* and *ESA/390*.

Environmental Record Editing and Printing (EREP) program. The program that makes the data contained in the system recorder file available for further analysis.

EP (Emulation Program). An IBM control program that allows a channel-attached 3705 or 3725 communication controller to emulate the functions of an IBM 2701 Data Adapter Unit, an IBM 2702 Transmission Control, or an IBM 2703 Transmission Control. See also *network control program*.

ER (explicit route). In SNA, the path control network elements, including a specific set of one or more transmission groups, that connect two subarea nodes. An explicit route is identified by an origin subarea address, a destination subarea address, an explicit route number, and a reverse explicit route number. Contrast with *virtual route (VR)*. See also *path*.

EREP (Environmental Recording, Editing and Printing) program. The program that makes the data contained in the system recorder file available for further analysis.

ESA mode. An operation mode of the supervisor (generated with MODE=ESA) of a VSE system. Such a supervisor will run on Enterprise Systems Architecture processors (ESA/370 and ESA/390) and provides support for the channel subsystem and more than 16 Mb of real storage.

ESA/370. IBM Enterprise Systems Architecture/370. The extension to the IBM System/370* architecture which includes the advanced addressability feature that provides access registers.

ESA/390. IBM Enterprise Systems Architecture/390. The latest extension to the IBM System/370 architecture which includes advanced addressability feature and advanced channel architecture.

*** escape.** To return to the original level of a user interface.

*** Ethernet.** A 10-Mbps baseband local area network that allows multiple stations to access the transmission medium at will without prior coordination, avoids contention by using carrier sense and deference, and resolves contention by using collision detection and delayed retransmission. Ethernet uses carrier sense multiple access with collision detection (CSMA/CD).

explicit route (ER). In SNA, the path control network elements, including a specific set of one or more transmission groups, that connect two subarea nodes. An explicit route is identified by an origin subarea address, a destination subarea address, an explicit route number, and a reverse explicit route number. Contrast with *virtual route (VR)*. See also *path*.

extended network addressing. The network addressing system that splits the address into an 8-bit subarea and a 15-bit element portion. The subarea portion of the address is used to address host processors or communication controllers. The element portion is used to permit processors or controllers to address resources.

Fast Copy Data Set program (VSE/Fast Copy). An IBM utility program for fast copy data operations from disk to disk and dump/restore operations via an intermediate dump file on magnetic tape or disk.

fast service upgrade. A service function of VSE/ESA for the installation of a refresh release without regenerating control information such as library control tables.

FDDI. See Fiber Distributed Data Interface.

*** Fiber Distributed Data Interface (FDDI).** An American National Standards Institute (ANSI) standard for a 100-megabit-per-second LAN using optical fiber cables.

field-formatted. Pertaining to a request or response that is encoded into fields, each having a specified format such as binary codes, bit-significant flags, and symbolic names. Contrast with *character-coded*.

file. A named set of records stored or processed as a unit. (T) Synonymous with data set.

formatted system services. A portion of VTAM that provides certain system services as a result of receiving a field-formatted command, such as an Initiate or Terminate command. Contrast with *unformatted system services (USS)*. See also *field-formatted*.

frame. (1) The unit of transmission in some local area networks, including the IBM Token-Ring Network. It includes delimiters, control characters, information, and checking characters. (2) In SDLC, the vehicle for every command, every response, and all information that is transmitted using SDLC procedures.

full duplex (FDX). Synonym for *duplex*.

gateway. (1) The combination of machines and programs that provide address translation, name translation, and system services control point (SSCP) rerouting between independent SNA networks to allow those networks to communicate. A gateway consists of one gateway NCP and at least one gateway SSCP. (2) In the IBM Token-Ring Network, a device and its associated software that connect a local area network to another local area network or a host that uses different logical link protocols.

generation feature. An IBM licensed program order option used to tailor the object code of a program to user requirements.

generic alert. Encoded alert information that uses code points (defined by IBM and possibly customized by users or application programs) stored at an alert receiver, such as the NetView program.

half-duplex. In data communication, pertaining to an alternate, one way at a time, independent transmission. Contrast with *duplex*.

hard-copy file. A system file on disk, used to log all lines of communication between the system and the operator at the system console, to be printed on request.

hard wait. The condition of a processor when all operations are suspended. System recovery from a hard wait is impossible without performing a new system start up.

hardware. Physical equipment used in data processing, as opposed to programs, procedures, rules, and associated documentation. (I) (A) Contrast with *software*.

hardware monitor. The component of the NetView program that helps identify network problems, such as hardware, software, and microcode, from a central control point using interactive display techniques.

help panel. A display of information provided by the system in response to a user's help request.

host processor. (1) In a network, the processor in which the access method for the network resides. (2) In an SNA network, the processor that contains an SSCP.

ICA (integrated communication adapter). The part of a processor where multiple lines can be connected.

ICCF (Interactive Computing and Control Facility). See *VSE/ICCF*.

inactive. Describes the state of a resource that has not been activated or for which the VARY INACT command has been issued. Contrast with *active*. See also *inoperative*.

independent LU. A logical unit (LU) that does not receive an ACTLU over a link. Such LUs can act as primary logical units (PLUs) or secondary logical units (SLUs) and can have one or more LU-LU sessions at a time. Contrast with *dependent LU*.

initial program load (IPL). The process of loading system programs and preparing the system to run jobs.

inoperative. The condition of a resource that has been active, but is not. The resource may have failed, received an INOP request, or is suspended while a reactivate command is being processed. See also *inactive*.

intelligent workstation. A terminal that can be programmed to perform user-determined functions.

integrated communication adapter (ICA). The part of a processor where multiple lines can be connected.

interactive. Pertaining to a program or system that alternately accepts input and then responds. An interactive system is conversational, that is, a continuous dialog exists between user and system.

Interactive Computing and Control Facility (ICCF). See *VSE/ICCF*.

Interactive Interface. That part of the system program which provides sets of selection- and data-entry panels.

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Through these panels, users communicate with the system and supply it with information needed to perform the desired action.

Interactive System Productivity Facility (ISPF). An IBM licensed program that serves as a full-screen editor and dialogue manager. Used for writing application programs, it provides a means of generating standard screen panels and interactive dialogues between the application programmer and terminal user.

*** Internet Protocol (IP).** In the Internet suite of protocols, a connectionless protocol that routes data through a network or interconnected networks. IP acts as an intermediary between the higher protocol layers and the physical network. However, this protocol does not provide error recovery and flow control and does not guarantee the reliability of the physical network.

I/O device. A device in a data processing system by means of which data may be entered into the system, received from the system, or both.(I) (A)

IP. See Internet Protocol.

*** IP address.** The unique 32-bit address that specifies the location of each device or workstation on the Internet. For example, 9.67.97.103 is an IP address.

IPL (Initial Program Load). The process of loading system programs and preparing the system to run jobs.

ISPF (Interactive System Productivity Facility). An IBM licensed program that serves as a full-screen editor and dialogue manager. Used for writing application programs, it provides a means of generating standard screen panels and interactive dialogues between the application programmer and terminal user.

JCL (job control language). A language that serves to prepare a job or each job step of a job to be run. Some of its functions are: to determine the I/O devices to be used, set switches for program use, log (or print) its own statements, fetch the first phase of each job step.

JECL (Job Entry Control Language). A control language that allows the programmer to specify how VSE/POWER should handle a job.

JES. (Job Entry Subsystem) A subsystem for use under OS/390.

job. One program or a group of related programs called job steps complete with the JCL statements necessary for a particular run. A job is identified in the job stream by a JOB statement followed by one EXEC statement for each of the programs or job steps.

job control language (JCL). A language that serves to prepare a job or each job step of a job to be run.

Some of its functions are: to determine the I/O devices to be used, set switches for program use, log (or print) its own statements, fetch the first phase of each job step.

job stream. The sequence of jobs as submitted to an operating system.

*** KB (kilobyte).** 1024 bytes of storage.

*** kilobyte (KB).** 1024 bytes of storage.

label. (1) An identification record for a tape, disk, or diskette volume or for a file on such a volume. (2) In assembler programming, a named instruction generally used for branching.

*** LAN (local area network).** A data network located on the user's premises in which serial transmission is used for direct data communication among data stations. (T)

*** LAN emulation (LE).** The transparent use of an ATM network as an Ethernet-type LAN (IEEE 802.3) or a token-ring LAN (IEEE 802.5). LAN emulation enables equipment such as hosts, desktop computers, bridges, hubs, and routers with the ATM interface, to use an ATM network as an emulated LAN at the medium access control (MAC) layer, and to communicate readily with devices on existing LANs. ATM LAN emulation presents the same interface to higher level application programs and protocols as that presented by other types of LANs such as Ethernet, token-ring, and Fiber Distributed Data Interface (FDDI). When a higher layer protocol has native access to ATM, the protocol can control the bandwidth and quality of service (QoS) parameters used to establish ATM virtual channels. In contrast, when an ATM endsystem is operating in LAN emulation mode, ATM is hidden from the higher layer protocol by the LAN emulation client software that establishes best-effort delivery. Therefore, the ATM network services of guaranteed bandwidth and quality of service are not fully exploited.

LE. See LAN emulation.

LEN (low-entry networking). In SNA, a capability in type 2.1 nodes allowing them to be directly attached to one another using peer-to-peer protocols and allowing them to support multiple and parallel sessions between logical units (LUs).

*** librarian.** The set of programs that maintains, services, and organizes the system and private libraries.

library. Disk storage space in the system where programs in various forms and storage dumps are stored. The form of a program is indicated by its type ID such as object module, phase, or procedure. Source code is identified by a one-character type ID of which some are reserved. A library consists of at least one

sublibrary which can contain any type of member. Storage dumps from a library can be viewed interactively.

*** library member.** The smallest unit of data to be stored in and retrieved from a sublibrary.

*** licensed program.** A separately priced program and its associated materials that bear an IBM copyright and are offered to customers under the terms and conditions of the IBM Customer Agreement (ICA).

line. Short for telecommunication line. Any physical medium such as a wire or microwave beam, that is used to transmit data. Synonymous with *transmission line*.

link. (1) To connect items of data or portions of programs, for example linking of object programs by the linkage editor or linking of data items by pointers. (2) In SNA, the combination of the link connection and the link stations joining network nodes, for example, a System/370 channel and its associated protocols. A link is both logical and physical. Synonymous with *data link*.

link-attached. Pertaining to devices that are physically connected by a telecommunication line. Synonymous with *remote*. Contrast with *channel-attached*.

link connection. In SNA, the physical equipment providing two-way communication between one link station and one or more other link stations; for example, a telecommunication line and data circuit terminating equipment (DCE).

link station. (1) In SNA, the combination of hardware and software that allows a node to attach to and provide control for a link. (2) In VTAM, a named resource within a subarea node that represents another subarea node that is attached by a subarea link. In the resource hierarchy, the link station is subordinate to the subarea link.

local address. In SNA, an address used in a peripheral node in place of an SNA network address and transformed to or from an SNA network address by the boundary function in a subarea node.

*** local area network (LAN).** A data network located on the user's premises in which serial transmission is used for direct data communication among data stations. (T)

local-attached. Deprecated term for *channel-attached*.

local SNA major node. In VTAM, a major node whose minor nodes are channel-attached peripheral nodes.

logical channel. In packet mode operation, a sending channel and a receiving channel that together are used

to send and receive data over a data link at the same time. Several logical channels can be established on the same data link by interleaving the transmission of packets.

logical unit (LU). (1) A name used in programming to represent an I/O device address. (2) In SNA, a port through which a user accesses the SNA network, a) to communicate with another user and b) to access the functions of the SSCP. An LU can support at least two sessions -- one with an SSCP and one with another LU -- and may be capable of supporting many sessions with other LUs. Contrast with *physical unit (PU)*.

logical unit 6.2. A SNA/SDLC protocol for communication between programs in a distributed processing environment. LU 6.2 is characterized by (1) a peer relationship between session partners, (2) efficient utilization of a session for multiple transactions, (3) comprehensive end-to-end error processing, and (4) a generic application program interface (API) consisting of structured verbs that are mapped into a product implementation.

logon-interpret routine. In VTAM, an installation exit routine, associated with an interpret table entry, that translates logon information. It may also verify the logon.

logon mode. In VTAM, a subset of session parameters specified in a logon mode table for communication with a logical unit. See also *session parameters*.

logon mode table. In VTAM, a set of entries for one or more logon modes. Each logon mode is identified by a logon mode name. Synonymous with *logmode table*.

low-entry networking (LEN). In SNA, a capability in type 2.1 nodes allowing them to be directly attached to one another using peer-to-peer protocols and allowing them to support multiple and parallel sessions between logical units (LUs).

LU (logical unit). (1) A name used in programming to represent an I/O device address. (2) In SNA, a port through which a user accesses the SNA network, a) to communicate with another user and b) to access the functions of the SSCP. An LU can support at least two sessions -- one with an SSCP and one with another LU -- and may be capable of supporting many sessions with other LUs. Contrast with *physical unit (PU)*.

LU-LU session. In SNA, a session between two logical units (LUs) in an SNA network. It provides communication between two end users, or between an end user and an LU services component.

macro (instruction). (1) In assembler programming, a user-invented assembler statement that causes the

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assembler to process a set of statements defined previously in the macro definition. (2) A sequence of VSE/ICCF commands defined to cause a sequence of certain actions to be performed in response to one request.

*** Maintain System History Program (MSHP).** A program used for automating and controlling various installation, tailoring, and service activities for a VSE system.

major node. In VTAM, a set of minor nodes that can be activated as a group. See *node* and *minor node*.

*** MB (megabyte).** One megabyte equals 1,048,576 bytes which is 2 to the twentieth power.

*** member.** The smallest unit of data that can be stored in and retrieved from a sublibrary.

message. (1) In VSE, a communication sent from a program to the operator or user. It can appear on a console, a display terminal or on a printout. (2) In telecommunication, a logical set of data being transmitted from one node to another.

*** metropolitan area network (MAN).** A network formed by the interconnection of two or more networks which may operate at higher speed than those networks, may cross administrative boundaries, and may use multiple access methods. Contrast with local area network and wide area network.

*** migrate.** To move to a changed operating environment, usually to a new release or version of a system.

minor node. In VTAM, a uniquely-defined resource within a major node. See *node* and *major node*.

modem. A device that modulates and demodulates signals transmitted over data communication facilities. The term is a contraction for modulator-demodulator.

MSHP (Maintain System History Program). A program used for automating and controlling various installation, tailoring, and service activities for a VSE system.

multiple-domain network. In SNA, a network with more than one system services control point (SSCP). Contrast with *single-domain network*.

NAU (network addressable unit). In SNA, a logical unit, a physical unit, or a system services control point. It is the origin or the destination of information transmitted by the path control network. Each NAU has a network address that represents it to the path control network. See also *network address* and *network name*.

NCCF (Network Communications Control Facility). An IBM licensed program that is a base for command processors that can monitor, control, automate, and improve the operations of a network. Its function is included and enhanced in NetView's command facility.

NCP. (1) Network Control Program (IBM licensed program). Its full name is Advanced Communications Function for the Network Control Program. (2) Network control program (general term).

NCP major node. In VTAM, a set of minor nodes representing resources, such as lines and peripheral nodes, controlled by a network control program. See *major node*.

NCP V4 Subset. Advanced Communications Function for Network Control Program (NCP) V4 Subset. An IBM licensed program that is a subset of NCP. It operates only on IBM 3720 Communication Controllers with certain capacity limitations such as number of scanners, lines, and channel adapters supported.

NCP/Token-Ring interconnection (NTRI). An NCP function that allows a communication controller to attach to the IBM Token-Ring Network and provides both subarea and peripheral node DLC services in the SNA network.

NDT (network definition table). In VSE/POWER networking, the table where every node in the network is listed.

NetView. An IBM licensed program to monitor a network, manage it, and diagnose its problems.

network. (1) An arrangement of nodes (data stations) and connecting branches. (2) The assembly of equipment through which connections are made between data stations.

network address. In SNA, an address, consisting of subarea and element fields, that identifies a link, a link station, or a network addressable unit. Subarea nodes use network addresses; peripheral nodes use local addresses. The boundary function in the subarea node to which a peripheral node is attached transforms local addresses to network addresses and vice versa. See *local address*. See also *network name*.

network addressable unit (NAU). In SNA, a logical unit, a physical unit, or a system services control point. It is the origin or the destination of information transmitted by the path control network. Each NAU has a network address that represents it to the path control network. See also *network address* and *network name*.

Network Communications Control Facility (NCCF). An IBM licensed program that is a base for command processors that can monitor, control, automate, and

improve the operations of a network. Its function is included and enhanced in NetView's command facility.

Network Control Program (NCP). An IBM licensed program that provides communication controller support for single-domain, multiple-domain, and interconnected network capability. Its full name is Advanced Communications Function for the Network Control Program.

network control program. A program, generated by the user from a library of IBM-supplied modules, that controls the operation of a communication controller.

network definition table (NDT). In VSE/POWER networking, the table where every node in the network is listed.

networking. Making use of the services of a network program.

Network Logical Data Manager (NLDM). An IBM licensed program that collects and correlates session-related data and provides online access to this information. It runs as an NCCF communication network management (CNM) application program. Its function is included and enhanced in NetView's session monitor.

network name. (1) In SNA, the symbolic identifier by which end users refer to a network addressable unit (NAU), a link, or a link station. See also *network address*. (2) In a multiple-domain network, the name of the APPL statement defining a VTAM application program is its network name and it must be unique across domains. Contrast with *ACB name*.

network operator. (1) A person or program responsible for controlling the operation of all or part of a network. (2) The person or program that controls all the domains in a multiple-domain network. Contrast with *domain operator*.

Network Terminal Option (NTO). An IBM licensed program that allows certain non-SNA devices to participate in sessions with SNA application programs in the host processor. NTO converts non-SNA protocol to SNA protocol when data is sent to the host from a non-SNA device and reconverts SNA protocol to non-SNA protocol when data is sent back to the device.

NLDM. An IBM licensed program that collects and correlates session-related data and provides online access to this information. It runs as an NCCF communication network management (CNM) application program. Its function is included and enhanced in NetView's session monitor.

node. (1) In SNA, an endpoint of a link or junction common to two or more links in a network. Nodes can be distributed to host processors, communication controllers, cluster controllers, or terminals. Nodes can

vary in routing and other functional capabilities. (2) In VTAM, a point in a network defined by a symbolic name. Synonymous with *network node*. See *major node* and *minor node*.

*** node name.** In VTAM, the symbolic name assigned to a specific major or minor node during network definition.

node type. In SNA, a designation of a node according to the protocols it supports and the network addressable units (NAUs) that it can contain. Five types are defined: 1, 2.0, 2.1, 4, and 5. Type 1, type 2.0, and type 2.1 nodes are peripheral nodes; type 4 and type 5 nodes are subarea nodes. See also *type 2.1 node*.

nonswitched line. A telecommunication line on which connections do not have to be established by dialing. Contrast with *switched line*.

NTO (Network Terminal Option). An IBM licensed program that allows certain non-SNA devices to participate in sessions with SNA application programs in the host processor. NTO converts non-SNA protocol to SNA protocol when data is sent to the host from a non-SNA device and reconverts SNA protocol to non-SNA protocol when data is sent back to the device.

NTRI (NCP/Token-Ring interconnection). An NCP function that allows a communication controller to attach to the IBM Token-Ring Network and provides both subarea and peripheral node DLC services in the SNA network.

OCCF (Operator Communication Control Facility). An IBM licensed program that helps reduce operator interaction in the operation of a VSE controlled installation and helps centralize data processing skills.

online. Stored in a computer and accessible from a terminal.

online processing. Processing by which the input data enters the computer directly from a display station and the output data is transmitted directly to the display station.

*** operating system.** Software that controls the running of programs; an operating system may provide services such as resource allocation, scheduling, input/output control, and data management. (I) (A)

*** operator console.** A display console used for communication between the operator and the system.

optional program. An IBM program that a user can install on VSE/ESA by way of available installation-assist support.

OS/2 (Operating System/2*). An IBM operating system that operates with IBM workstations.

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packet. A sequence of binary digits, including data and control signals, that is transmitted and switched as a composite whole. The data, control signals, and possibly error control information are arranged in a specific format.(I)

packet switching. The processing of routing and transferring data by means of addressed packets so that a channel is occupied only during transmission of a packet. On completion of the transmission, the channel is made available for transfer of other packets.(I)

packet window. The maximum number of consecutive data packets that are allowed to flow between a data terminal equipment (DTE) and a data circuit-terminating equipment (DCE) before an acknowledgment is received for a given logical channel.

packet-switched data network (PSDN). A public data network established and operated by network common carriers or telecommunication administrations for providing packet-switched data transmission.

panel. The complete set of information shown in a single display on a terminal screen. Scrolling back and forth through panels is like turning manual pages. See also *selection panel* and *data entry panel*.

partition. A division of the address space that is available for running programs.

partitioned emulation programming (PEP) extension. A function of a network control program that enables a communication controller to operate some telecommunication lines in network control mode while simultaneously operating others in emulation mode.

*** password.** In computer security, a string of characters known to the computer system and a user. He must specify it to gain full or limited access to the system and to the data stored in it.

path. (1) In SNA, the series of path control network components (path control and data link control) that are traversed by the information exchanged between two network addressable units (NAUs). See also *explicit route (ER)* and *virtual route (VR)*. (2) In VTAM when defining a switched major node, a potential dial-out port that can be used to reach that node. (3) In the NetView/PC program, a complete line in a configuration that contains all of the resources in the service point command service (SPCS) query link configuration request list.

PC (personal computer). A microcomputer for individuals or small businesses.

PC-DOS. An IBM disk operating system that operates with IBM personal computers.

*** peer.** In network architecture, any functional unit that is in the same layer as another entity.

pending active session. In VTAM, the state of an LU-LU session recorded by the system services control point (SSCP) when it finds both logical units (LUs) available and has sent a CINIT request to the primary logical unit (PLU) of the requested session.

peripheral LU. In SNA, a logical unit representing a peripheral node.

peripheral node. In SNA, a node that uses local addresses for routing and therefore is not affected by changes in network addresses. A peripheral node requires boundary-function assistance from an adjacent subarea node. A peripheral node is a physical unit (PU) type 1, 2.0, or 2.1 node connected to a subarea node with boundary function within a subarea.

peripheral PU. In SNA, a physical unit representing a peripheral node.

permanent virtual circuit (PVC). A virtual circuit that has a logical channel permanently assigned to it at each data terminal equipment (DTE). A call establishment protocol is not required.

personal computer (PC). A microcomputer for individuals or small businesses.

*** phase.** The smallest unit of executable code that can be loaded into virtual storage.

physical circuit. A circuit established without multiplexing. Contrast with *virtual circuit*.

physical connection. In VTAM, a point-to-point connection or multipoint connection. Synonymous with *connection*.

physical unit (PU). In SNA, a type of network addressable unit (NAU). A physical unit (PU) manages and monitors the resources (such as attached links) of a node, as requested by a system services control point (SSCP) through an SSCP-PU session. An SSCP activates a session with the physical unit in order to indirectly manage, through the PU, resources of the node such as attached links. See also *peripheral PU* and *subarea PU*.

physical unit (PU) type. In SNA, the classification of a physical unit (PU) according to the type of node in which it resides. The PU type is the same as its node type; that is, a type 1 PU resides in a type 1 node, and so forth.

PLU (primary logical unit). In SNA, the logical unit (LU) that contains the primary half-session for a particular LU-LU session. Each session must have a PLU and secondary logical unit (SLU). The PLU is the

unit responsible for the bind and is the controlling LU for the session. A particular LU may contain both primary and secondary half-sessions for different active LU-LU sessions. Contrast with *secondary logical unit (SLU)*.

PNET. Programming support available with VSE/POWER; it provides for the transmission of selected jobs, operator commands, messages, and program output between the nodes of a network.

polling. In telecommunication, the process of inviting linked stations to transmit, one after the other.

POWER. See *VSE/POWER*.

*** pregenerated operating system.** An operating system such as VSE/ESA that is shipped by IBM mainly in object code. IBM defines such key characteristics as the size of the main control program, the organization and size of libraries, and required system areas on disk. The customer does not have to generate an operating system.

*** preventive service.** The installation of one or more PTFs on a VSE system to avoid the occurrence of anticipated problems.

*** primary library.** A VSE library owned and directly accessible by a certain terminal user.

primary logical unit (PLU). In SNA, the logical unit (LU) that contains the primary half-session for a particular LU-LU session. Each session must have a PLU and secondary logical unit (SLU). The PLU is the unit responsible for the bind and is the controlling LU for the session. A particular LU may contain both primary and secondary half-sessions for different active LU-LU sessions. Contrast with *secondary logical unit (SLU)*.

*** Print Services Facility (PSF).** The access method that supports the 3800 Printing Subsystem Models 3 and 8. PSF can interface either directly to a user's application program or indirectly through JES, the spooling component of OS/390.

program product. See *licensed program*.

program service. The customer- or program-related IBM service of correcting design or implementation errors via APARs and PTFs.

program temporary fix (PTF). A solution or by-pass of one or more problems documented in APARs. PTFs are distributed to IBM customers for preventive service to a current release of a program.

programmable workstation (PWS). A workstation that has some degree of processing capability and that allows the user to change its functions. Contrast with nonprogrammable workstation.

protocol. In SNA, the set of rules for requests and responses between communicating nodes that want to exchange data.

PSDN (packet-switched data network). A public data network established and operated by network common carriers or telecommunication administrations for providing packet-switched data transmission.

*** PSF (Print Services Facility).** The access method that supports the 3800 Printing Subsystem Models 3 and 8. PSF can interface either directly to a user's application program or indirectly through JES, the spooling component of OS/390.

PTF (program temporary fix). A solution or by-pass of one or more problems documented in APARs. PTFs are distributed to IBM customers for preventive service to a current release of a program.

PU (physical unit). In SNA, a type of network addressable unit (NAU). A physical unit (PU) manages and monitors the resources (such as attached links) of a node, as requested by a system services control point (SSCP) through an SSCP-PU session. An SSCP activates a session with the physical unit in order to indirectly manage, through the PU, resources of the node such as attached links. See also *peripheral PU* and *subarea PU*.

PU type (physical unit type). In SNA, the classification of a physical unit (PU) according to the type of node in which it resides. The PU type is the same as its node type; that is, a type 1 PU resides in a type 1 node, and so forth.

public network. A network established and operated by communication common carriers or telecommunication Administrations for the specific purpose of providing circuit-switched, packet-switched, and leased-circuit services to the public.

PVC (permanent virtual circuit). A virtual circuit that has a logical channel permanently assigned to it at each data terminal equipment (DTE). A call establishment protocol is not required.

PWS (programmable workstation). A workstation that has some degree of processing capability and that allows the user to change its functions. Contrast with nonprogrammable workstation.

*** queue.** (1) A line or list formed by items in a system waiting for service; for example, tasks to be performed or messages to be transmitted in a network. (2) To arrange in, or form, a queue.

RACF (Resource Access Control Facility). A licensed program that provides for access control by identifying and verifying users to the system, authorizing access to DASD data sets, logging detected

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unauthorized attempts to enter the system, and logging detected accesses to protected data sets.

Recommendation X.25 (Geneva 1980). A Consultative Committee on International Telegraph and Telephone (CCITT) recommendation for the interface between data terminal equipment and packet-switched data networks. See also *packet switching*.

remote. Pertaining to a system, program, or device that is accessed through a telecommunication line. Synonym for *link-attached*.

Resource Access Control Facility (RACF). A licensed program that provides for access control by identifying and verifying users to the system, authorizing access to DASD data sets, logging detected unauthorized attempts to enter the system, and logging detected accesses to protected data sets.

reverse charging acceptance. A facility that enables a data terminal equipment (DTE) to receive incoming packets that request reverse charging.

RJE. (Remote Job Entry) Submission of jobs through an input unit that has access to a computer through a data link.

RSCS. (Remote Spooling Communications Subsystem) The component of VM/SP that transfers spool files between users, remote stations, and local and remote batch systems.

scanner. (1) A device capable of electronically reviewing amounts of data and translating the data into a machine readable form. (2) For the 3725 communication controller, a processor dedicated to controlling a small number of telecommunication lines. It provides the connection between the line interface coupler hardware and the central control unit.

SDLC (synchronous data link control). A discipline for managing synchronous, code-transparent, serial-by-bit information transfer over a link connection. Transmission exchanges may be duplex or half-duplex over switched or non-switched links. The configuration of the link connection may be point-to-point, multipoint, or loop.

*** search chain.** The order in which chained sublibraries are searched for the retrieval of a certain library member of a specified type.

secondary logical unit (SLU). In SNA, the logical unit (LU) that contains the secondary half-session for a particular LU-LU session. An LU may contain secondary and primary half-sessions for different active LU-LU sessions. Contrast with *primary logical unit (PLU)*.

*** selection panel.** A displayed list of items from which a user can make a selection. Synonymous with menu.

service node. Within the VSE/ESA unattended node support, a processor used to install and test a master VSE/ESA system which is copied for distribution to the unattended nodes. Also, program fixes are first applied at the service node and then sent to the unattended nodes.

session monitor. The component of the NetView program that collects and correlates session-related data and provides online access to this information.

session parameters. In SNA, the parameters that specify or constrain the protocols (such as bracket protocol and pacing) for a session between two network addressable units. See also *logon mode*.

*** shutdown.** The process of ending operation of a system or a subsystem, following a defined procedure.

sift-down effect. The copying of a value from a higher-level resource to a lower-level resource. The sift-down effect applies to many of the keywords and operands in NCP and VTAM definition statements. If an operand is coded on a macroinstruction or generation statement for a higher-level resource, it need not be coded for lower-level resources for which the same value is desired. The value "sifts down," that is, becomes the default for all lower-level resources.

*** sign on.** (1) The procedure to be followed at a terminal or a workstation to establish a link to a computer. (2) To begin a session at a workstation.

single-domain network. In SNA, a network with one system services control point (SSCP). Contrast with *multiple-domain network*.

skeleton job. A set of control statements and/or instructions that requires user-specific information to be inserted before it can be submitted for processing.

SNA (Systems Network Architecture). The description of the logical structure, formats, protocols, and operational sequences for transmitting information units through and controlling the configuration and operation of networks.

SNA network. The part of a user-application network that conforms to the formats and protocols of Systems Network Architecture. It enables reliable transfer of data among end users and provides protocols for controlling the resources of various network configurations. The SNA network consists of network addressable units (NAUs), boundary function components, and the path control network.

*** software.** Programs, procedures, rules, and any associated documentation pertaining to the operation of a computer system.

solicited message. A response from VTAM to a command entered by a program operator. Contrast with *unsolicited message*.

SQL/Data System (Structured Query Language/Data System). An IBM licensed program for using a data base in an online, interactive, or batch environment.

SSCP (system services control point). In SNA, a focal point within an SNA network for managing the configuration, coordinating network operator and problem determination requests, and providing directory support and other session services for end users of the network. Multiple SSCPs, cooperating as peers, can divide the network into domains of control, with each SSCP having a hierarchical control relationship to the physical units and logical units within its domain.

SSCP-LU session. In SNA, a session between a system services control point (SSCP) and a logical unit (LU); the session enables the LU to request the SSCP to help initiate LU-LU sessions.

SSCP-PU session. In SNA, a session between a system services control point (SSCP) and a physical unit (PU); SSCP-PU sessions allow SSCPs to send requests to and receive status information from individual nodes in order to control the network configuration.

SSCP-SSCP session. In SNA, a session between the system services control point (SSCP) in one domain and the SSCP in another domain. An SSCP-SSCP session is used to initiate and terminate cross-domain LU-LU sessions.

SSP (System Support Programs). An IBM licensed program made up of a collection of utilities and small programs, that supports the operation of the NCP. Synonymous with *ACF/SSP*.

start option. In VTAM, a user-specified or IBM-supplied option that determines certain conditions that are to exist during the time an VTAM system is operating. Start options can be predefined or specified when VTAM is started.

start-stop transmission. (1) Asynchronous transmission such that a group of signals representing a character is preceded by a start element and is followed by a stop element.(T) (2) Asynchronous transmission in which a group of bits is preceded by a start bit that prepares the receiving mechanism for the reception and registration of a character and is followed by at least one stop bit that enables the receiving mechanism to come to an idle condition pending the reception of the next character.

stand-alone program. A program that runs independently of (not controlled by) the VSE system.

startup. The process of performing IPL of the operating system and of getting all subsystems and application programs ready for operation.

station. (1) One of the input or output points of a network that uses communication facilities; for example, the telephone set in the telephone system or the point where the business machine interfaces with the channel on a leased private line. (2) One or more computers, terminals, or devices at a particular location.

status monitor. A component of the NetView program that collects and summarizes information on the status of resources defined in a VTAM domain.

Structured Query Language/Data System (SQL/DS). An IBM licensed program for using a data base in an online, interactive, or batch environment.

subarea. A portion of the SNA network consisting of a subarea node, any attached peripheral nodes, and their associated resources. Within a subarea node, all network addressable units, links, and adjacent link stations (in attached peripheral or subarea nodes) that are addressable within the subarea share a common subarea address and have distinct element addresses.

subarea address. In SNA, a value in the subarea field of the network address that identifies a particular subarea. See also *element address*.

subarea link. In SNA, a link that connects two subarea nodes.

subarea PU. In SNA, a physical unit (PU) in a subarea node.

subarea/element address split. The division of a 16-bit network address into a subarea address and an element address.

sublibrary. In VSE, a subdivision of a library. Members can only be accessed in a sublibrary.

submit. A VSE/POWER function that passes a job to the system for processing.

* **subsystem.** A secondary or subordinate system or program, usually capable of operating independently of, or asynchronously with, the operating system.

* **supervisor.** The part of a control program that coordinates the use of resources and maintains the flow of processor operations.

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

switched major node. In VTAM, a major node whose minor nodes are physical units and logical units attached by switched SDLC links.

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switched network. Any network in which connections are established by closing switches, for example, by dialing.

switched virtual circuit (SVC). An X.25 circuit that is dynamically established when needed. The X.25 equivalent of a switched line.

SVC (switched virtual circuit). An X.25 circuit that is dynamically established when needed. The X.25 equivalent of a switched line.

Synchronous Data Link Control (SDLC). A discipline for managing synchronous, code-transparent, serial-by-bit information transfer over a link connection. Transmission exchanges may be duplex or half-duplex over switched or non-switched links. The configuration of the link connection may be point-to-point, multipoint, or loop.

SYSRES (system residence volume). The disk volume on which the system sublibrary is stored and from which the hardware retrieves the initial program load routine for system start up.

*** system console.** A console, usually equipped with a keyboard and display screen for control and communication with the system.

system residence volume (SYSRES). The disk volume on which the system sublibrary is stored and from which the hardware retrieves the initial program load routine for system start up.

system services control point (SSCP). In SNA, a focal point within an SNA network for managing the configuration, coordinating network operator and problem determination requests, and providing directory support and other session services for end users of the network. Multiple SSCPs, cooperating as peers, can divide the network into domains of control, with each SSCP having a hierarchical control relationship to the physical units and logical units within its domain.

system sublibrary. The sublibrary that contains the operating system. It is stored on the system residence volume (SYSRES).

System Support Programs (SSP). An IBM licensed program made up of a collection of utilities and small programs, that supports the operation of the NCP. Synonymous with *ACF/SSP*.

Systems Network Architecture (SNA). The description of the logical structure, formats, protocols, and operational sequences for transmitting information units through and controlling the configuration and operation of networks.

*** tailor.** A process that defines or modifies the characteristics of the system.

TCP. See Transmission Control Protocol.

TCP/IP. See Transmission Control Protocol/Internet Protocol.

TCT (terminal control table). A control block in which the system stores information about the characteristics and modes of operation of the terminals defined to the system.

*** telecommunication.** Transmission of data between computer systems and between such a system and remote devices.

telecommunication line. Any physical medium such as a wire or microwave beam, that is used to transmit data. Synonymous with *transmission line*.

terminal. A point in a system or network at which data can either enter or leave. (A) Usually a display screen with a keyboard.

terminal access facility (TAF). In the NetView program, a facility that allows a network operator to control a number of subsystems. In a full-screen or operator control session, operators can control any combination of such subsystems simultaneously.

terminal control table (TCT). A control block in which the system stores information about the characteristics and modes of operation of the terminals defined to the system.

time event scheduling support. In VSE/POWER, the time event scheduling support offers the possibility to schedule jobs for processing in a partition at a predefined time once or repetitively. The time event scheduling operands of the * \$\$ JOB statement are used to specify the desired scheduling time.

token. A sequence of bits passed from one device to another along the token ring. When the token has data appended to it, it becomes a frame.

*** token-ring network.** (1) A ring network that allows unidirectional data transmission between data stations by a token passing procedure over one transmission medium so that the transmitted data returns to the transmitting station. (T) (2) A network that uses a ring topology, in which 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.

transaction. (1) In a batch or remote batch entry, a job or job step. (2) In CICS, an application program (or programs) that can be used by a display station operator. A given transaction can be used concurrently from one or more display stations. The execution of a transaction for a certain operator is also referred to as a task. A given task can relate only to one operator.

*** Transmission Control Protocol (TCP).** A communications protocol used in the Internet and in any network that follows the U.S. Department of Defense standards for internetwork protocol. TCP provides a reliable host-to-host protocol between hosts in packet-switched communications networks and in interconnected systems of such networks. It uses the Internet Protocol (IP) as the underlying protocol.

*** Transmission Control Protocol/Internet Protocol (TCP/IP).** A set of communications protocols that support peer-to-peer connectivity functions for both local and wide area networks.

transmission group (TG). In SNA, a group of links between adjacent subarea nodes, appearing as a single logical link for routing of messages. A transmission group may consist of one or more SDLC links (parallel links) or of a single System/370 channel.

transmission line. Synonym for *telecommunication line*.

type 2.1 node (T2.1 node). A node that can attach to an SNA network as a peripheral node using the same protocols as type 2.0 nodes. Type 2.1 nodes can be directly attached to one another using peer-to-peer protocols.

*** unattended mode.** A mode in which no operator is present or in which no operator station is included at system generation.

unattended node support. In VSE/ESA, a set of functions allowing VSE/ESA systems to run without an operator being present. The VSE/ESA systems are connected to a single central host.

unformatted. In VTAM, pertaining to commands (such as LOGON or LOGOFF) entered by an end user and sent by a logical unit in character form. The character-coded command must be in the syntax defined in the user's unformatted system services definition table. Synonymous with *character-coded*. Contrast with *field-formatted*.

unformatted system services (USS). In SNA products, a system services control point (SSCP) facility that translates a character-coded request, such as a logon or logoff request into a field-formatted request for processing by formatted system services and translates field-formatted replies and responses into character-coded requests for processing by a logical unit. Contrast with *formatted system services*. See also *converted command*.

unsolicited message. A message, from VTAM to a program operator, that is unrelated to any command entered by the program operator. Contrast with *solicited message*.

USS. Unformatted system services.

virtual circuit. In packet switching, those facilities provided by a network that give the appearance to the user of an actual connection.(T) Contrast with *physical circuit*.

virtual route (VR). In SNA, a logical connection (1) between two subarea nodes that is physically realized as a particular explicit route, or (2) that is contained wholly within a subarea node for intra-node sessions. A virtual route between distinct subarea nodes imposes a transmission priority on the underlying explicit route, provides flow control through virtual-route pacing, and provides data integrity through sequence numbering of path information units (PIUs).

virtual storage. Addressable space image for the user from which instructions and data are mapped into processor storage locations.

Virtual Storage Access Method (VSAM). An access method (an IBM licensed program known as VSE/VSAM) for indexed or sequential processing of fixed and variable length records on disk devices.

Virtual Storage Extended (VSE). An operating system that is an extension of DOS/VS.

A VSE system consists of a) a licensed VSE/Advanced Functions support and b) any IBM-supplied and user-written programs required to meet the data processing needs of a user. VSE and the hardware it controls form a complete computing system.

Virtual Telecommunications Access Method (VTAM). An IBM licensed program that controls communication and the flow of data in an SNA network. It provides single-domain, multiple-domain, and interconnected network capability.

VM/ESA (Virtual Machine/Enterprise Systems Architecture). An IBM program providing operating system support. Among other services, it manages the resources of a single computer so that multiple computing systems seem to exist. Each of those virtual machines is the functional equivalent of an IBM computer system.

VR (virtual route). In SNA, a logical connection (1) between two subarea nodes that is physically realized as a particular explicit route, or (2) that is contained wholly within a subarea node for intra-node sessions. A virtual route between distinct subarea nodes imposes a transmission priority on the underlying explicit route, provides flow control through virtual-route pacing, and provides data integrity through sequence numbering of path information units (PIUs).

VSAM (Virtual Storage Access Method). An access method (an IBM licensed program known as

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VSE/VSAM) for indexed or sequential processing of fixed and variable length records on disk devices.

VSE (Virtual Storage Extended). A system that consists of a basic operating system and any IBM supplied and user-written programs required to meet the data processing needs of a user. VSE and the hardware it controls form a complete computing system. Its current version is called VSE/ESA.

VSE/Advanced Functions. A program that provides basic system control and includes the supervisor and system programs such as the Librarian and the Linkage Editor. It is part of VSE Central Functions, which is a base program of VSE/ESA.

VSE/ESA. VSE/Enterprise Systems Architecture: a VSE system configured and pregenerated by IBM.

*** VSE/Fast Copy (VSE/Fast Copy Data Set program).** A program for fast copy data operations from disk to disk and dump/restore operations via an intermediate dump file on magnetic tape or disk. It is part of VSE Central Functions, which is a base program of VSE/ESA.

*** VSE/ICCF (VSE/Interactive Computing and Control Facility).** A program that serves as interface, on a time-slice basis, to authorized users of terminals linked to the system's processor. It is part of VSE Central Functions, which is a base program of VSE/ESA.

*** VSE/OCCF (Operator Communication Control Facility).** An IBM program that helps reduce operator interaction in the operation of a VSE controlled installation and helps centralize data processing skills.

*** VSE/POWER.** A program primarily used to spool input and output. The program's networking functions enable a VSE system to exchange files with or run jobs on another remote processor. It is part of VSE Central Functions, which is a base program of VSE/ESA.

VSE/SP. VSE/System Package: a VSE system configured and pregenerated by IBM. The predecessor of VSE/ESA.

VSE/VSAM (VSE/Virtual Storage Access Method). See *VSAM*.

VTAM (Virtual Telecommunications Access Method). An IBM program that controls communication and the flow of data in an SNA network. It provides single-domain, multiple-domain, and interconnected network capability.

VTAM application program. A program that has opened an ACB to identify itself to VTAM and can now issue VTAM macro instructions.

VTOC (volume table of contents). A table on a disk volume that describes every file on it.

wait for run subqueue. In VSE/POWER, a subqueue of the reader queue with dispatchable jobs ordered in execution start time sequence.

wait state. The condition of a processor when all operations are suspended. System recovery from a hard wait is impossible without performing a new system start up. Synonym for hard wait.

WAN. See wide area network.

*** wide area network (WAN).** (1) A network that provides communication services to a geographic area larger than that served by a local area network or a metropolitan area network, and that may use or provide public communication facilities. (2) A data communication network designed to serve an area of hundreds or thousands of miles; for example, public and private packet-switching networks, and national telephone networks. (3) Contrast with local area network and metropolitan area network.

window. (1) In SNA, synonym for *pacing group*. (2) On a visual display terminal, a small amount of information in a framed-in area on a panel that overlays part of the panel. (3) In data communication, the number of data packets a data terminal equipment (DTE) or data circuit-terminating equipment (DCE) can send across a logical channel before waiting for authorization to send another data packet. The window is the main mechanism of pacing, or flow control, of packets.

window size. (1) The specified number of frames of information that can be sent before receiving an acknowledgment response. (2) In SNA, synonym for *pacing group size*.

workstation. A terminal or microcomputer, usually one that is connected to a host processor or to a network, where a user can run interactive application programs.

Workstation File Transfer Support. Enables the exchange of data between IBM Personal Computers linked to a VSE/ESA host system where the data is kept in intermediate storage. PC users can retrieve that data and work with it independently of VSE/ESA.

X.25. See *Recommendation X.25 (Geneva 1980)*.

X.25 interface. An interface consisting of a data terminal equipment (DTE) and a data circuit-terminating equipment (DCE) in communication over a link using the procedures described in the CCITT Recommendation X.25.

X.25 NCP Packet Switching Interface (NPSI). The X.25 Network Control Program Packet Switching

Interface, which is an IBM licensed program that allows SNA users to communicate over packet-switched data networks that have interfaces complying with Recommendation X.25 (Geneva 1980) of the International Telegraph and Telephone Consultative Committee (CCITT). It allows SNA programs to

communicate with SNA equipment or with non-SNA equipment over such networks. In addition, this product may be used to attach native X.25 equipment to SNA host systems without a packet network. See also *Recommendation X.25 (Geneva 1980)*.

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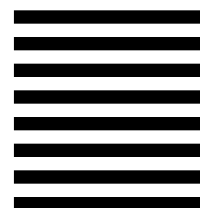
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