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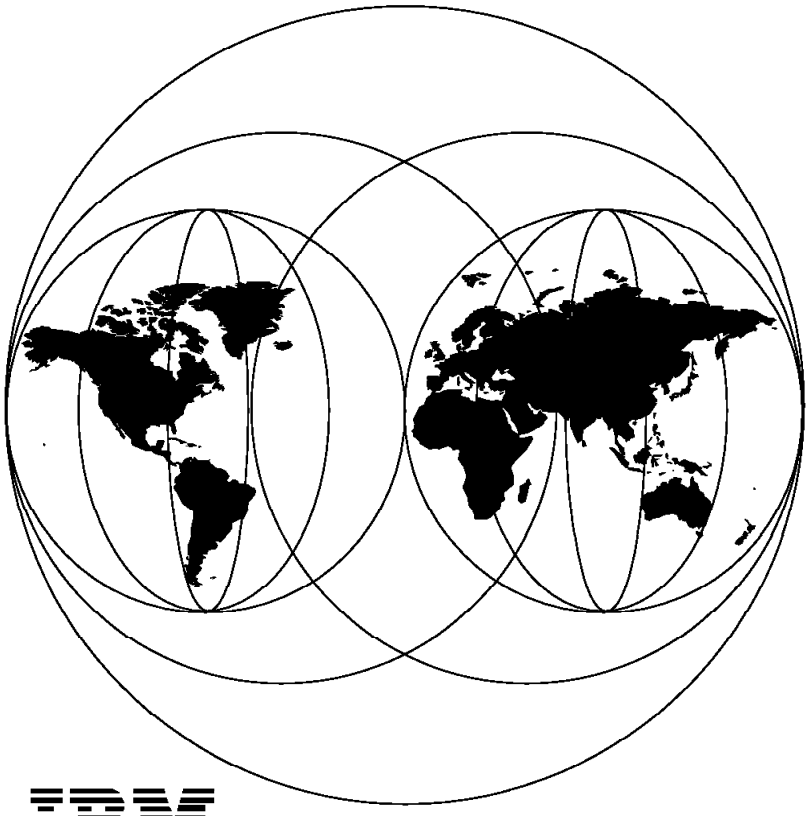
AS/400 Advanced 36 SSP 7.5 and OS/400 V3R6: Coexistence Examples

July 1996



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AS/400 Advanced 36 SSP 7.5 and OS/400 V3R6: Coexistence Examples

July 1996

Take Note!

Before using this information and the product it supports, be sure to read the general information in Appendix B, “Special Notices” on page 337.

First Edition (July 1996)

This edition applies to Version 3 Release 6 Modification 0 of OS/400 Operating System and to Release 7 Modification 5 of SSP Operating System for use with the AS/400 Advanced System 36.

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Contents

Preface ix
How This Redbook Is Organized ix
The Team That Wrote This Redbook xi
Comments Welcome xii

Part 1. Introduction Overview 1

Chapter 1. Introduction 3
1.1 SSP Already Installed Considerations 7
1.2 Running SSP and OS/400 At the Same Time 8

Part 2. Installation and Setup 11

Chapter 2. Overview of Advanced 36 Installation Tasks 13
2.1.1 Path A: Upgrading an AS/400 Advanced 36 Model 236 to Model 436 . 15
2.1.2 Path B: Installing a New Advanced 36 Model 436 with SSP 7.5 Preloaded 16
2.1.3 Path C: Installing a New Advanced 36 Model 436 with Both OS/400 and SSP 7.5 Preloaded 17
2.1.4 Path D: Adding OS/400 to an Advanced 36 Model 436 with SSP 7.5 Installed 18
2.1.5 Path E: Creating a Second Advanced 36 Machine on an Advanced 36 Model 436 19
2.1.6 Path F: Consolidating an Existing AS/400 OS/400 System and SSP on the Same AS/400 Advanced System 21

Chapter 3. AS/400 Advanced 36 Configuration Example 23
3.1 SSP and OS/400 Coexistence Configuration Example 26
3.1.1 Create an SSP Machine Example 27
3.1.2 Create an SSP Machine Configuration Object Example 29
3.1.3 Start the SSP Machine Example 60
3.2 Running SSP and OS/400 Coexistence Functions 64
3.2.1 OS/400 Transfer to AS/400 Advanced 36 (TFRM36) Example 64
3.2.2 SSP User // RUN400 OCL Statement Examples 67
3.2.3 OS/400 STRM36PRC Command Example 71
3.2.4 Printed Output User ID Assignment Summary 71
3.2.5 Other SSP and OS/400 Coexistence Functions 72

Chapter 4. Internal Local Area Network 75
4.1 Internal Local Area Network Configuration Table 75
4.2 Using Entries in an Example 77
4.3 The Internal Local Area Network Configuration 80
4.3.1 OS/400 Network Attributes of the AS/400 Advanced 36 85
4.3.2 OS/400 System Values 87
4.3.3 Create ILAN APPC Controller Definition for OS/400 88
4.3.4 OS/400 Configuration List Support 89
4.3.5 SSP Security Edit Communications 93
4.3.6 Starting an SSP Machine 94
4.3.7 Create ILAN APPC Definition for SSP Machine 95
4.3.8 Matching Parameters OS/400 to SSP Machine 106

4.4 How to Start and Maintain Internal Local Area Network 107
4.4.1 Starting ILAN on OS/400 107
4.4.2 Starting ILAN for an SSP 110
4.4.3 SUBSYSTEM STATUS 113
4.4.4 Disabling Your ILAN Subsystem 114
4.4.5 Possible Internal Local Area Network Problems 114

Part 3. Service Options 117

Chapter 5. Service and Support 119
5.1 Fee-Based Service Offerings 119
5.1.1 AS/400 Support Line 119
5.1.2 AS/400 Alert 119
5.1.3 AS/400 Associate 119
5.1.4 AS/400 Consult Line 119
5.1.5 AS/400 Forum 119
5.1.6 AS/400 Advanced 36 On-Line Forum 119
5.2 System Serviceability Aids 120
5.2.1 AS/400 Dedicated Service Tools 120
5.2.2 SSP Main Storage Display Alter (MSDA) 121
5.2.3 Remote Support Tool 121
5.2.4 OS/400 Electronic Customer Support 122
5.2.5 Program Temporary Fixes (PTFs) 122
5.2.6 Reviewing Received PTF Information 127
5.2.7 Installing PTFs Received Electronically 128

Part 4. PC Support/36 and Client Access/400 137

Chapter 6. PC Support/36 to a M36 Machine on Twinax 141
6.1 System Requirements 141
6.2 M36 Configuration 142
6.3 PC Configuration 142
6.4 Operation 146

Chapter 7. PC Support/36 to M36 Machine on Token-Ring 149
7.1 System Requirements 149
7.2 M36 Configuration 150
7.3 M36 Token-Ring Configuration 153
7.4 M36 ICF Configuration 156
7.5 PC Configuration 157
7.6 Operation 163
7.7 Matching Parameters 165

Chapter 8. Client Access/400 for DOS Ext to M36 on Token-Ring 167
8.1 System Requirements 167
8.2 M36 Configuration 168
8.3 M36 Token-Ring Configuration 168
8.4 M36 ICF Line Configuration 168
8.5 M36 Subsystem Configuration 172
8.6 SSP Security 178
8.7 PC Configuration 179
8.8 PC Configuration for Windows 179
8.9 Operation 180

8.10 Matching Parameters 182

Chapter 9. Client Access/400 for DOS Ext to M36 through OS/400 on Token-Ring 183
9.1 System requirements 184
9.2 OS/400 Definition for PC 184
9.3 OS/400 Definition for SSP 185
9.4 M36 ILAN Line Definition 185
9.5 M36 ILAN Subsystem Definition 189
9.6 SSP Security 195
9.7 PC Configuration 195
9.8 PC Configuration for Windows 196
9.9 Operation 196
9.10 Matching Parameters 199

Chapter 10. Client Access/400 for DOS Ext to M36 through OS/400 on Ethernet 201
10.1 System Requirements 202
10.2 OS/400 Definition for PC 202
10.3 OS/400 Definition for the SSP machine 203
10.4 SSP Machine ILAN Line Definition 203
10.5 SSP Machine ILAN Subsystem Definition 203
10.6 SSP Security 203
10.7 PC Configuration 203
10.8 PC Configuration for Windows 207
10.9 Operation 207
10.10 Matching Parameters 210

Chapter 11. Client Access/400 for OS/2 to M36 on Token-Ring 213
11.1 System Requirements 213
11.2 OS/400 Configuration 214
11.3 M36 Token-Ring Configuration 214
11.4 M36 Line Configuration 214
11.5 M36 Subsystem Configuration 218
11.6 SSP Security 224
11.7 Communications Manager/2 Configuration 224
11.8 Client Access/400 Installation 228
11.9 Operation 229
11.10 Matching Parameters 230

Chapter 12. Client Access/400 for OS/2 to M36 through OS/400 on Token-Ring 231
12.1 System Requirements 232
12.2 OS/400 Definition for PC 232
12.3 OS/400 Definition for SSP Machine 232
12.4 SSP Machine ILAN Line Definition 232
12.5 SSP Machine ILAN Subsystem Definition 232
12.6 SSP Security 233
12.7 Communications Manager/2 Configuration 233
12.8 Operation 239
12.9 Matching Parameters 242

Chapter 13. Client Access/400 for OS/2 to OS/400 through M36 on Token-Ring 245
13.1 System Requirements 246

13.2 M36 Configuration 246
13.3 M36 Token-Ring Configuration 246
13.4 OS/400 ILAN APPC Controller Description 246
13.5 OS/400 Definition for PC 247
13.6 M36 ILAN Line Configuration for OS/400 247
13.7 M36 TRN1LINE Line Configuration for PC 247
13.8 M36 APPN Subsystem Configuration 250
13.9 Communications Manager/2 Configuration 257
13.10 Operation 263
13.11 Matching Parameters 265

Part 5. Data Access on AS/400 Advanced 36 269

Chapter 14. SSP File System and DB/2 for OS/400 271
14.1 The SSP File System 271
14.2 The Integrated Relational Database DB2 for OS/400 272

Chapter 15. Display Station Pass-Through 273
15.1 OS/400 Pass-Through to an SSP Machine 273
15.2 SSP Passthru 274
15.3 Pass-Through Considerations 275

Chapter 16. Distributed Data Management 279
16.1 Related DDM Publications 279
16.2 DDM Between SSP and OS/400 Example 279
16.2.2 Entering Data from IM436M06 Device into SSPFILE on IBMM3601 282
16.3 Preparing a NRD for Electronically Ordered PTFs 285
16.4 DDM Considerations 286
16.4.1 Supported 286
16.4.2 Unsupported 286

Chapter 17. Object Distribution Facility 287
17.1 ODF and SNADS Configuration Summary 287
17.2 Using ODF Support to Send an Object 288

Part 6. Using AS/400 Facsimile Support for OS/400 297

Chapter 18. Facsimile Support for OS/400 for the SSP Operator 299
18.1 Facsimile Support/400 Overview 299
18.2 Getting Started 301
18.2.1 Setting Up Facsimile Support for OS/400 301
18.2.2 SSP Setup to Interface with OS/400 for Fax Output 302
18.2.3 OS/400 Setup to Interface With SSP for Fax Output 310
18.2.4 Faxing SSP Output on the OS/400 OUTQ 317
18.2.5 Tips for Success 327

Appendix A. Model 436 Performance Management Overview 331
A.1 OS/400 Performance Overview 332

Appendix B. Special Notices 337

Appendix C. Related Publications 339
C.1 International Technical Support Organization Publications 339

C.2 Other Publications 339

How To Get ITSO Redbooks 341
How IBM Employees Can Get ITSO Redbooks 341
How Customers Can Get ITSO Redbooks 342
IBM Redbook Order Form 343

Glossary 345

Index 347

Preface

This redbook is intended for the System/36 SSP customer considering moving to OS/400. Now is the time to do this with the availability of the AS/400 Advanced 36. The Advanced 36 enables SSP and OS/400 applications and operating environments to coexist and share resources on the same system configuration.

This document contains cookbook examples for configuring SSP and OS/400 to run on the same system, enabling the SSP user to use OS/400 Ethernet and advanced technology communication support, Client Access/400, Facsimile Support for OS/400, electronic distribution of SSP PTFs, and enabling data access between SSP and OS/400.

The redbook is intended to get a function operational as quickly as possible. Some basic understanding of SSP and OS/400 is assumed. You are referred to the formal AS/400 Advanced 36 SSP Release 7.5 and OS/400 Version 3 Release 6 publications for additional details where appropriate.

How This Redbook Is Organized

This redbook contains 332 pages. It is organized as follows:

- Part 1, “Introduction Overview”
  - Chapter 1, “Introduction” on page 3 provides an introduction to the system capabilities when both a System/36 SSP ″machine″ and OS/400 are active concurrently on the same AS/400 Advanced 36 system.
- Part 2, “Installation and Setup”
  - Chapter 2, “Overview of Advanced 36 Installation Tasks” on page 13 provides an overview of the various paths for achieving an SSP only environment and an SSP and OS/400 environment.

    Note: An *SSP only environment* or *an SSP and OS/400 environment* **is completely independent** of the *System/36 environment* that runs under OS/400. While the System/36 environment enables running many SSP applications under OS/400, the AS/400 Advanced 36 provides significantly more SSP capabilities in the range of applications that can be run, SSP operating procedures, and ease of use in accessing SSP functions from OS/400 and OS/400 functions from SSP. This redbook does not discuss System/36 environment capabilities as those capabilities are well documented in existing AS/400 publications.
  - Chapter 3, “AS/400 Advanced 36 Configuration Example” on page 23 provides a pictorial overview of workstation device attachment and data access within an SSP and OS/400 environment. Examples are provided for configuration, device and communication resource sharing, and new ″cross operating system″ commands that include SSP users running OS/400 commands and OS/400 users running SSP procedures.
  - Chapter 4, “Internal Local Area Network” on page 75 provides a step-by-step configuration example for using the Advanced 36 Internal Local Area Network (ILAN) for accessing data among one or more SSPs and OS/400 on the same system.
- Part 3, “Service Options”

- Chapter 5, “Service and Support” on page 119 provides an overview of the various AS/400 operating systems and Advanced 36 service offerings. This section also shows an example of using OS/400 electronic customer support (ECS) to download an SSP PTF and then install the PTF on an SSP residing on the AS/400 Advanced 36.

- Part 4, “ PC Support/36 and Client Access/400”

  This part provides configuration examples of the many ways to connect either PC Support/36 or Client Access/400 to access SSP or OS/400 ″data.″

  - Chapter 6, “PC Support/36 to a M36 Machine on Twinax” on page 141 shows a PC Support/36 twinax connection to SSP example.
  - Chapter 7, “PC Support/36 to M36 Machine on Token-Ring” on page 149 shows a PC Support/36 token-ring connection to SSP example.
  - Chapter 8, “Client Access/400 for DOS Ext to M36 on Token-Ring” on page 167 shows a Client Access/400 for DOS Extended token-ring connection to SSP example.
  - Chapter 9, “Client Access/400 for DOS Ext to M36 through OS/400 on Token-Ring” on page 183 shows a Client Access/400 for DOS Extended token-ring connection to SSP through OS/400 example.
  - Chapter 10, “Client Access/400 for DOS Ext to M36 through OS/400 on Ethernet” on page 201 shows a Client Access/400 for DOS Extended Ethernet connection to SSP through OS/400 example.
  - Chapter 11, “Client Access/400 for OS/2 to M36 on Token-Ring” on page 213 shows a Client Access/400 for OS/2 token-ring connection to SSP example.
  - Chapter 12, “Client Access/400 for OS/2 to M36 through OS/400 on Token-Ring” on page 231 shows a Client Access/400 for OS/2 token-ring connection to SSP through OS/400 example.
  - Chapter 13, “Client Access/400 for OS/2 to OS/400 through M36 on Token-Ring” on page 245 shows a Client Access/400 for OS/2 token-ring connection to OS/400 through SSP example.

- Part 5, “Data Access on AS/400 Advanced 36”

  - Chapter 14, “SSP File System and DB/2 for OS/400” on page 271 summarizes the SSP file system and the OS/400 DB2 file system support capabilities.
  - Chapter 15, “Display Station Pass-Through” on page 273 describes Display Station Pass-Through capabilities between an active SSP machine and OS/400 on the same AS/400 Advanced 36.
  - Chapter 16, “Distributed Data Management” on page 279 describes Distributed Data Management (DDM) capabilities between an active SSP machine and OS/400 on the same system. In addition to application data access, the usage of DDM to enable SSP PTF installation from an SSP PTF received through OS/400 Electronic Customer Support (ECS) is described.
  - Chapter 17, “Object Distribution Facility” on page 287 describes how to use both SSP Object Distribution Facility (ODF) and OS/400 object distribution support to exchange data and submit jobs between an SSP machine and OS/400.

- Part 6, “Using AS/400 Facsimile Support for OS/400”

- Chapter 18, “Facsimile Support for OS/400 for the SSP Operator” on page 299 describes how the SSP user can make use of AS/400 Facsimile Support for OS/400.

- Appendix A, “Model 436 Performance Management Overview” on page 331 provides some high-level performance tips for measuring and managing SSP and OS/400 applications on the same system.

The Team That Wrote This Redbook

This redbook was produced by a team of specialists from around the world working at the International Technical Support Organization Rochester Center.

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Comments Welcome

We want our redbooks to be as helpful as possible. Should you have any comments about this or other redbooks, please send us a note at the following address:

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Your comments are important to us!

Part 1. Introduction Overview

This part provides an overview of the new SSP Release 7.5 capabilities and new OS/400 Version 3 Release 6 capabilities to support SSP and OS/400 running on the same AS/400 Advanced 36. It also introduces the new OS/400 terminolgy and ″definitions″ that enable running SSP and OS/400 applications at the same time.

This part contains the following chapter:

- Chapter 1, “Introduction” on page 3

Chapter 1. Introduction

IBM introduced the AS/400 Advanced 36 Model 236 in 1994. This system responds to the requirements most often stated when a move from a System/36 machine is considered, including improved interactive response time, increased on-line storage capacity, protected application and equipment investment, and easy migration while considering the total cost of ownership and ease-of-use.

In 1996, the new AS/400 Advanced 36 Model 436 with PowerPC technology offers all of these and more. The Advanced 36 with SSP Release 7.5 offers a range of performance and increased main storage capacity significantly greater than the Model 236. With the optional addition of OS/400 Version 3 Release 6, the SSP user has access to OS/400 functions beyond that supported by SSP, including up to 20 communication lines (Wide Area Network (WAN) and LAN lines using either token-ring or Ethernet protocol), integrated fax, electronic distribution of PTFs, and enriched PC connectivity with access to Client Access/400 running under DOS, Windows, or OS/2. The System/36 user who wants to add a LAN can do so for less cost and can take advantage of AS/400 support for Ethernet or Token-Ring LANs.

Unattended backups can be streamlined. Application development and database management are state-of-the-art using AS/400 award-winning functions.

With OS/400 active, the SSP user also has access to the world-wide-web through the OS/400 Web server code that is part of the WebConnection for OS/400 Smoothstart service offering. As this redbook goes to print, the OS/400 Web server code is based on non-IBM software. When the full-function IBM Web server functions become available, the Advanced 36 user will have access to these functions as well.

In general, any OS/400 V3R6 function is available to the SSP-based user on the Advanced 36 system.

With OS/400 active on the Model 436, up to three SSP machines can be IPLed (started) at the same time. Each SSP machine is ″defined to OS/400″ and IPLed through new V3R6 OS/400 Advanced 36 commands. You still use CNFIGSSP on this SSP machine as you have with previous releases of SSP, except you have some SSP Release 7.5 enhancements.

This Redbook is written to familiarize the SSP user with new functions the Advanced 36 user may utilize as SSP and OS/400 coexist on the same system. We describe the tasks involved with installing an Advanced 36 with just SSP Release 7.5 running or both SSP and OS/400 started. An example Advanced 36 environment with three ILPed SSP machines is described. We also describe how data is accessed, functions are called, and resources are shared between the different operating systems through:

- The new SSP // RUN400 OCL statement
- The new OS/400 Transfer to AS/400 Advanced 36 (TFRM36) command
- The new OS/400 Start System/36 Procedure (STRM36PRC) command
- Previously available SSP and OS/400 support for Object Distribution Facility (ODF), Display Station Pass-Through (DSPT), and Distributed Data Management (DDM)

These previously available functions can use the new for SSP Release 7.5 and OS/400 Version 3 Release 6 **Internal Local Area Network (ILAN)** support for communication *within the same Advanced 36*.

Service and support are enhanced for the SSP user with the addition of the OS/400 environment. Electronic support and service offerings are described.

For the PC user, the advanced functions of Client Access are now available. Configuration examples are shown for most of the PC connectivity options available with Client Access and OS/400.

And finally, an example of an advanced application product is shown - Facsimile Support/400. The SSP users can now utilize this OS/400 product on their own Advanced 36.

The objective of this redbook is to expedite the SSP user′s steps to make use of the advanced functions of the AS/400 system and to ensure that data can be accessed between SSPs or an SSP and an OS/400.

Note: This manual may be your first introduction to the Advanced 36 Model 436 and its capability to run both SSP and OS/400 on the same system at the same time. While many ″system defaults″ are provided to ease the coexistence of both SSP and OS/400 on the same physical hardware, some new terms, concepts, and the ″sharing″ of AS/400 resources must be understood for successful operation.

We recommend that the Advanced 36 *General Information for SSP Operating System*, SC21-8299, manual be read or be available while reading this redbook. SC21-8299 provides a very good explanation of SSP and OS/400 coexistence concepts and terminology. It also provides specific information not described in this redbook. This additional information includes:

- Program products and their feature codes that have changed from previous releases, including SSP Release 7.1, which runs on the AS/400 Advanced 36 Model 236 (SSP only).
- Transition Aid procedure details including what is saved and restored and what is **not** saved and restored.
- COBOL Dynamic-Call support
- RPG External Call
- Specific enhancements to SSP procedures, control commands, OCL, and SSP Utilities
- 1/4-inch tape cartridge support
- Time of day-based enhancements
- WKSTYPE Procedure support for determining workstation device characteristics.
- New SSP Display System Value (DSPSYSVL) and Change System Value (CHGSYSVL) support
- Miscellaneous SSP communications support enhancements, including APPC use of 16K byte SNA Request/Response Unit (RU) size and programming use of 16K records when supported by the programming language

In this redbook, we use ″short-hand″ terms or ″synonyms″ for two key terms used in the formal AS/400 Advanced 36 publications - **AS/400 Advanced 36**

machine and **AS/400 Advanced 36 machine configuration object**. For the AS/400 Advanced 36 machine, we use the term **SSP machine** and for the AS/400 Advanced 36 machine configuration object, we use the term **SSP machine configuration object**.

The remainder of this chapter describes these formal IBM documentation terms and the equivalent redbook ″synonyms″ as they are used throughout the succeeding chapters of this redbook. The following provides overview descriptions of these terms with the formal AS/400 documentation term listed first, followed by the redbook term within parentheses.

- **AS/400 Advanced 36 Machine** (**SSP machine**)

  The SSP machine is created by the OS/400 command Create AS/400 Advanced 36 Machine (CRTM36). The SSP machine is stored as an OS/400 object of type ***M36**. (You see **M36** on most of the OS/400 Advanced 36 command displays and documentation. M36 is sometimes used in this document to be an abbreviation for ″SSP machine.″)

  The SSP machine is IPLed when you issue the OS/400 command Start AS/400 Advanced 36 Machine (STRM36), which specifies the **SSP machine** (*M36 object) to start. Each SSP machine has its own unique set of SSP libraries, files, folders, programs, and data. Each SSP machine also contains the SSP Release 7.5 operating system and installed SSP Licensed Program Products (LPPs).

  The STRM36 command identifies the **SSP machine** and optionally, the **SSP machine configuration object** that is *applied* when you IPL the SSP machine. The SSP machine configuration object is similar to (but does not replace) the System/36 SSP *master configuration record* that is used at IPL.

  Once you apply the SSP machine configuration through the STRM36 command, the configuration information becomes part of the SSP machine. Therefore, the next time you use STRM36 for that SSP machine, you need not specify the SSP machine configuration object to apply.

  Each SSP machine is sometimes referred to as a *logical SSP.* We use *SSP machine* in this redbook.

  Also, this redbook and formal AS/400 Advanced 36 documentation use the term **started** to represent an IPLed SSP machine. For example, the OS/400 Work with AS/400 Advanced 36 Machine (WRKM36) command used to show the status and configuration parameters of an SSP machine uses the status of *started*. This means the STRM36 command has been issued and the SSP machine has completed its IPL processing. We begin to use *started* from now on in this redbook.

- **AS/400 Advanced 36 Machine configuration object** (**SSP machine configuration object**):

  The SSP machine configuration object is created by the OS/400 command Create AS/400 Advanced 36 Machine Configuration (CRTM36CFG). The SSP machine configuration object is stored as an OS/400 object of type ***M36CFG**.

  This SSP machine configuration object contains configuration information for communication lines and displays, printers, tapes, diskettes, and optical devices under control of an **SSP machine**. The CRTM36CFG command′s functions are similar to the System/36 CNFIGSSP functions. The SSP machine configuration object is required to properly manage resources between SSP and OS/400.

Figure 1 on page 6 represents a pictorial example of an Advanced 36 with OS/400 and three started (IPLed) SSP machines - SSP1, SSP2, and SSP3. The SSP machine configuration object (*M36CFG) applied when each SSP machine is started is also shown as SSP1C, SSP2C, and SSP3C.

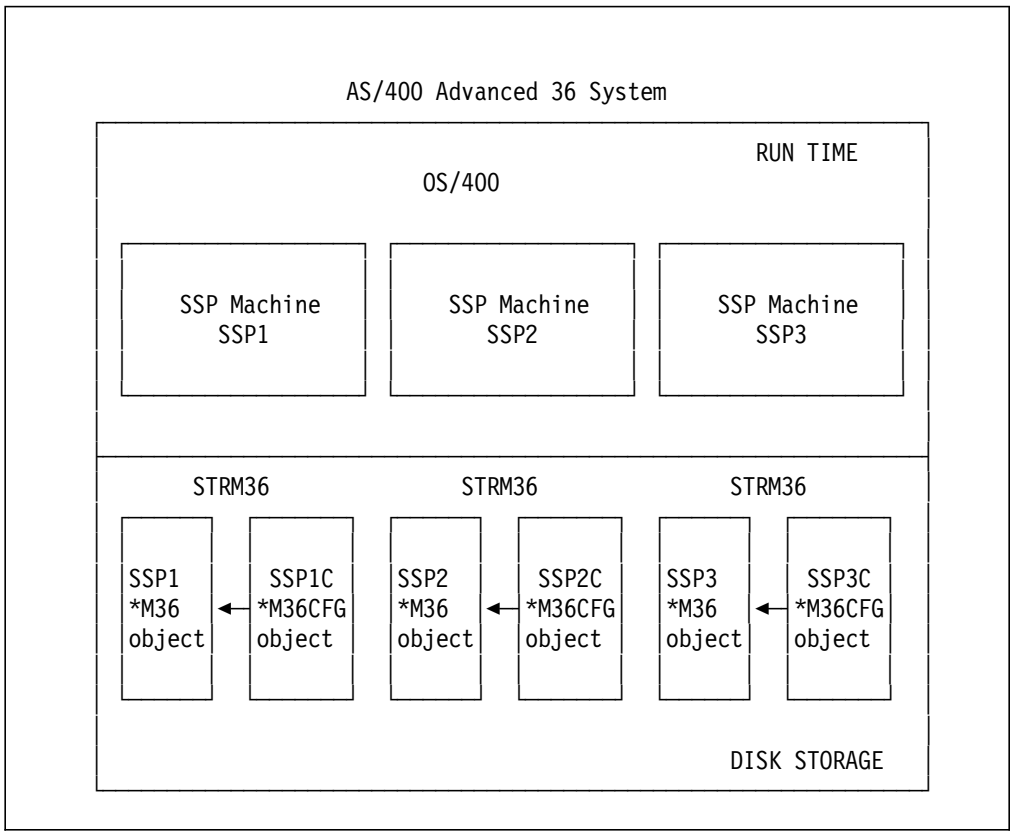


Figure 1. OS/400 with Three IPLed SSP Machines

As previously stated, once the SSP machine configuration object has been applied through an STRM36 command, the configuration information becomes part of the SSP machine. The next time the SSP machine is started, there is no need to apply an SSP machine configuration object again unless changes to configuration have been made. Changes can be made to an existing SSP configuration object or a completely new SSP machine configuration object can be created. The ″new configuration information″ is not used by an SSP machine until the SSP machine configuration object is applied through the next STRM36 command for that SSP machine.

You may consider applying different SSP machine configuration objects to the same SSP machine. For example, you may have a daytime SSP machine configuration object and a nighttime SSP machine configuration. In this example, you issue STRM36 and apply the daytime SSP machine configuration object at 06:00 hours. Then power down this daytime SSP machine at 18:00 hours and issue STRM36, applying a nighttime SSP machine configuration object. The nighttime SSP machine powers down at 05:30 hours the next day.

1.1 SSP Already Installed Considerations

If you install OS/400 after SSP 7.5 has been installed and started, the *M36 and *M36CFG objects are automatically created for you when you issue the OS/400 command Create AS/400 Advanced 36 Machine (CRTM36). In this case, you name the SSP machine (*M36 object) and the OS/400 library the object is stored in. The SSP machine configuration object (*M36CFG) is implicitly created through the CRTM36 command and has the same name as the *M36 object and is stored in the same library.

The information in this automatically created SSP machine configuration object is stored within the **first SSP machine created**. You do not need to apply this SSP machine configuration object when starting this SSP machine. This ″automatic apply″ of the SSP machine configuration object information applies only to the first SSP machine created after running in an SSP only environment.

In this ″already using SSP″ situation, the disk space allocated to the SSP machine is the same amount that was already assigned to the SSP. An SSP machine has no knowledge of disk storage occupied by supplied Licensed Internal Code (LIC) and OS/400. The SSP disk storage size can be from 80 megabytes up to the maximum size supported by SSP - 4080 megabytes, approximately 4 gigabytes. An SSP machine regards its disk space as a single *logical* disk drive (A1 in SSP terms), even though there are typically several *physical* disk devices on an AS/400 system. The AS/400 LIC scatters the SSP machine disk information across multiple physical disks transparent to SSP, just as it does for OS/400 disk information. An SSP machine′s disk information or the OS/400 disk information on the same Advanced 36 is treated by each operating system as if the data were on separate physical hardware configurations.

If SSP 7.5 has never been installed, you must explicitly create the **SSP machine** and an **SSP machine configuration object**. On the CRTM36 command, you must specify the amount of disk space assigned to this SSP machine up to 4080 megabytes. If you have sufficient disk storage capacity, each started SSP machine can support up to 4080 megabytes.

Both the SSP machine and the SSP machine configuration object must be specified the first time the STRM36 command is issued to IPL a specific SSP machine (except as previously described for OS/400 running on an AS/400 Advanced 36 where SSP was already running). After that SSP machine has been started for the first time, you must install SSP features and LPPs through CNFIGSSP, just as you do for SSP when no OS/400 is present.

Once an SSP machine has been started (IPLed), you do not need to specify an SSP machine configuration object to be applied on subsequent STRM36 commands unless you have made configuration changes you want to apply. You merely specify the **SSP machine** you want to use on STRM36. As previously stated, this SPP machine includes all of the necessary configuration information from the last time an SSP machine configuration object was applied.

1.2 Running SSP and OS/400 At the Same Time

Within a single Advanced 36 Model 436, you may have up to three SSP machines started at the same time with OS/400. Each SSP must have SSP features and LPPs installed - each SSP can have different SSP features and LPPs installed.

When starting multiple SSP machines, you must ensure applied SSP machine configuration objects have been defined so that there are no conflicts over sharing of resources. In many cases, a device such as a printer or tape device is ″serially reusable″ by multiple SSP machines and OS/400. For example, if a user running under SSP machine ″SSP1″ finishes using a printer, a user running under SSP machine ″SSP2″ or an OS/400 user may use the same printer device. Storage, data, and programs are managed by each SSP and OS/400 ″operating system″ independent of each other. The AS/400 Licensed Internal Code (LIC) enables this independent management.

Chapter 3, “AS/400 Advanced 36 Configuration Example” on page 23 provides a configuration example when running an SSP machine and OS/400 at the same time.

More details on configuration resource management and starting (IPLing) and stopping (powering off) SSP machines are provided in remaining chapters of this redbook.

It is important to note that when multiple operating systems (SSP machines and OS/400) are active, an ″administrator″ must assume responsibility for defining and managing resources being used to ensure smooth operation.

While reading subsequent chapters of this redbook, you may want to refer to this chapter or the Advanced 36 *General Information for SSP Operating System*, SC21-8299, for terminology and concepts. You may also consider using the *Glossary* section of this redbook for a review of these new terms and configuration parameters as you progress through this book.

Considerations for Using OS/400

The recommended way for an SSP-only user to begin using OS/400 is to select a function or application that exists only on the OS/400. This can include controlling spooled output, using an Ethernet line, using the world-wide-web, or running an advanced application.

In this way, you use the OS/400 function and minimize ″jumping back and forth between SSP and OS/400″ multiple times. If you are using a new application, the end users may not even realize they are running on either SSP or OS/400.

If you have a multi-step SSP application and migrate portions of the application to OS/400 in a way that results in constant jumping back and forth between SSP and OS/400 functions, you may need to become an ″expert″ in managing resources on both operating systems. SSP 7.5 and OS/400 support this capability, but you may find yourself spending more time managing resources than running the application productively.

This redbook shows you *how to do things* and gives some considerations why you should do something. But you must understand an existing application to determine if remaining in SSP, moving the application to OS/400, or even running in the System/36 Environment under OS/400 is the right choice for ease of the end user and system management.

Part 2. Installation and Setup

This part shows summaries of the various ways a Model 436 can be installed to run both SSP and OS/400, and provides configuration examples to enable SSP and OS/400 to communicate withing the same system.

- Chapter 2, “Overview of Advanced 36 Installation Tasks” on page 13
- Chapter 3, “AS/400 Advanced 36 Configuration Example” on page 23
- Chapter 4, “Internal Local Area Network” on page 75

Note: Throughout this redbook references to other chapters or topics will show the *beginning page number* of that chapter or topic.

Chapter 2. Overview of Advanced 36 Installation Tasks

This chapter summarizes the installation *paths* supported by the Advanced 36 Model 436. A high level overview of the steps involved along with suggested documentation is listed for each task.

The objective of this chapter is to ensure proper planning is completed before attempting to install a new Model 436 or upgrade from an existing Model 236 system. If the use of OS/400 is definitely planned, it is recommended that OS/400 be included in the original order for the Model 236 to Model 436 upgrade or for a brand new Model 436 system order.

You need to consider the user-based pricing of OS/400 and Client Access/400 when planning to use AS/400 functions from a started SSP machine. You must review the recommended documentation to ensure a successful Advanced 36 installation process. The document to start with is the *AS/400 Advanced 36 Planning and Reference Handbook*, SA21-9656.

To enable concurrent OS/400 operation and up to three SSP machines operating (started) at the same time, the OS/400 installation process must include loading the OS/400 ″Advanced 36″ commands during the installation of OS/400. These commands are placed in library QM36 and include the necessary commands to create an SSP machine (object type *M36), create an SSP machine configuration object (object type *M36CFG), and start a specific SSP machine using a specific SSP machine configuration object. The Work with M36 Machines command provides a menu for these Advanced 36 commands.

If only SSP (no OS/400) is installed and active on an AS/400 system, there is no need (or capability) to define an SSP other than through the traditional System/36 ″configure SSP″ interface. In this environment, you may take advantage of the additional performance of the Model 436 as compared to the Model 236 system and the following hardware and software Release 7.5 enhancements over the model 236:

- RAID5 or Mirroring disk data protection.
- Support for up to 160 local twinax attached workstations.
- Integration (no separate ordering) of LAN communications and former PRPQ 5799-FQE (AS/400 Advanced 36 V.25 BIS autodial) into SSP Release 7.5.
- Integrated support for writing compressed diskette data as well as reading compressed diskette data.

  SSP Release 7.1 supports the read and write of compressed diskette data, if a PTF is installed. Otherwise only read support is provided. Contact your IBM software service representative if you need the Release 7.1 write compressed diskette data PTF.
- Support for duplex printing if a duplex-capable printer is configured to the SSP.
- Support for changing the system time value and displaying system values.
- Capability to make use of the OS/400 capabilities if OS/400 is ordered and installed later.

The following provides summary level information for the various installation paths.

Path A **Upgrading an AS/400 Advanced 36 Model 236 to a Model 436**

This involves a hardware and software (SSP 7.1 to SSP 7.5) upgrade.

For more information on path A, see 2.1.1, “Path A: Upgrading an AS/400 Advanced 36 Model 236 to Model 436” on page 15.

Path B **Installing a new Advanced 36 Model 436 with SSP 7.5 preloaded**

This involves ordering an Advanced 36 Model 436 with SSP 7.5 preloaded. After installing the hardware, you can transition your applications and data from your installed System/36.

For more information on path B, see 2.1.2, “Path B: Installing a New Advanced 36 Model 436 with SSP 7.5 Preloaded” on page 16.

Path C **Installing a new Advanced 36 Model 436 with both OS/400 and SSP 7.5 preloaded**

This involves ordering an Advanced 36 Model 436 with both OS/400 and SSP 7.5 preloaded. After installing the hardware, you can transition your applications and data from your installed System/36.

For more information on path C, see 2.1.3, “Path C: Installing a New Advanced 36 Model 436 with Both OS/400 and SSP 7.5 Preloaded” on page 17.

Path D **Adding OS/400 to an Advanced 36 Model 436 with SSP 7.5 installed**

This involves adding OS/400 to an installed Advanced 36 Model 436 with SSP 7.5.

For more information on path D, see 2.1.4, “Path D: Adding OS/400 to an Advanced 36 Model 436 with SSP 7.5 Installed” on page 18.

Path E **Creating a Second Advanced 36 machine on an Advanced 36 Model 436**

Note: An Advanced 36 machine is an OS/400 object that allows you to run the SSP operating system under the control of OS/400.

This involves creating and loading an Advanced 36 machine with SSP and programming support.

After setting up the Advanced 36 machine, you can transition your applications and data from your installed System/36.

For more information on path E, see 2.1.5, “Path E: Creating a Second Advanced 36 Machine on an Advanced 36 Model 436” on page 19.

Path F **Consolidating an existing AS/400 system with a new Advanced 36 Model 436**

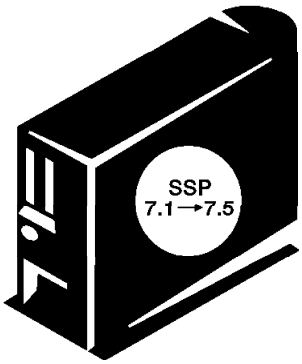
This involves ordering an Advanced 36 Model 436 with OS/400 and having only the base OS/400 preloaded. After installing the hardware, OS/400 applications and data are migrated to the Advanced 36 Model 436. Then, OS/400 options and licensed programs are installed. After creating and loading an Advanced 36 machine, you can transition your applications and data from your installed System/36.

For more information on the installation path F, see 2.1.6, “Path F: Consolidating an Existing AS/400 OS/400 System and SSP on the Same AS/400 Advanced System” on page 21.

Note: If you are consolidating a non-RISC (CISC) AS/400 system to an Advanced 36 Model 436 that has only SSP 7.5 installed, you must back up and remove your SSP installation, including SSP 7.5 operating system, licensed programs, and all user applications and user data. Next, you install OS/400 (base operating system only), migrate the OS/400 data to AS/400 Advanced 36 Model 436, install OS/400 options and licensed programs, and then reinstall your saved SSP installation (SSP machine).

For additional information, refer to Chapter 3 of *AS/400 Advanced 36 Planning and Reference Handbook*, SA21-9656 and *AS/400 Road Map for Changing to PowerPC Technology*, SA41-4150.

2.1.1 Path A: Upgrading an AS/400 Advanced 36 Model 236 to Model 436

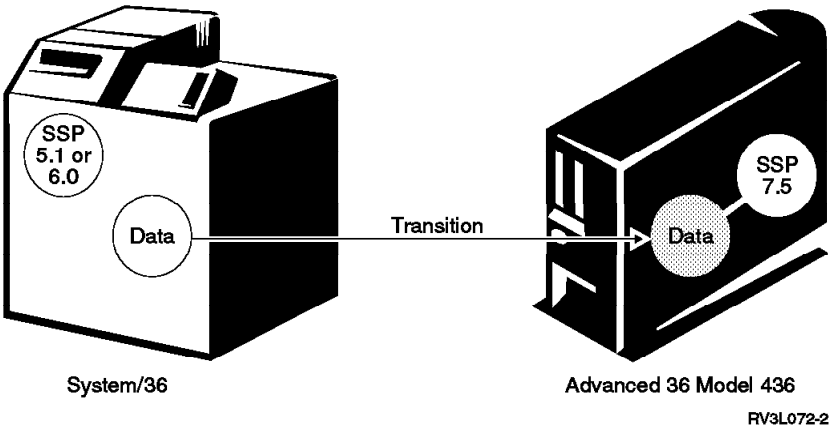


Advanced 36 Model 236 ⟶ Advanced 36 Model 436

RV3L071-0

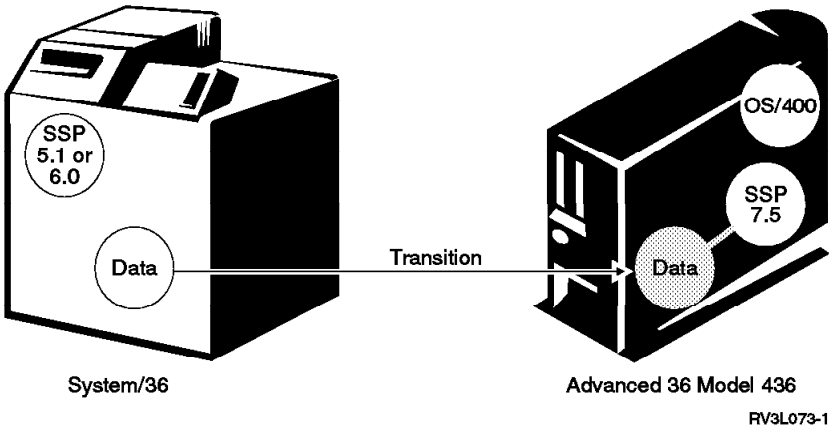
Overview of Tasks	Overview of Documentation
1. Prepare Advanced 36 Model 236 for the upgrade.	• *SSP 7.5 Read This First* • *SSP 7.5 Memo to Users* • Appendix E of *AS/400 Advanced 36 Planning and Reference Handbook, SA21-9656*
2. Upgrade the Model 236 hardware to Model 436 hardware and install new Licensed Internal Code (LIC). (Your service provider installs LIC).	• *9402 Upgrade Instructions*
3. Install SSP 7.5 on the Model 436.	• *Changing Your System Configuration – SSP* SC21-8295
4. Install SSP 7.5 programming support.	• *Changing Your System Configuration – SSP* SC21-8295
5. Install PTFs for Licensed Internal Code (LIC) and SSP.	• *AS/400 PTF Shipping Information Letter*
6. Back up the system.	• *Operating Your Computer – SSP Operating System* Operating Your Computer – SSP Operating System
7. Operate the system.	• *Operating Your Computer – SSP Operating System*
Optionally, you can add OS/400 to this system by using path D.	• For more information on path D, see 2.1.4, “Path D: Adding OS/400 to an Advanced 36 Model 436 with SSP 7.5 Installed” on page 18.

2.1.2 Path B: Installing a New Advanced 36 Model 436 with SSP 7.5 Preloaded



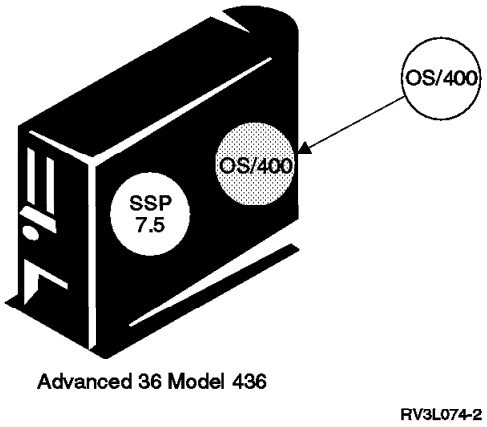
Overview of Tasks	Overview of Documentation
1. Install the Advanced 36 Model 436 hardware.	• *SSP 7.5 Read This First* • *SSP 7.5 Memo to Users* • *Physical Planning Summary*, SX41-4108 • *9402 Model 436 Installation Instructions* • *Fastpath Installation of Your Advanced 36*, SA41-4138
2. Install PTFs for Licensed Internal Code (LIC) and SSP.	• *AS/400 PTF Shipping Information Letter*
3. Transition the System/36 data to the Model 436 (if you are replacing a System/36).	• *Fastpath Installation of Your Advanced 36* (and *Operating Your Computer – SSP Operating System* if you are not using the Transition Data Link).
4. Move System/36 I/O cables (if you are replacing a System/36).	• *Fastpath Installation of Your Advanced 36* • *Cable Attachment*, SA41-4137
5. Back up the system.	• *Operating Your Computer – SSP Operating System*
6. Operate the system.	• *Operating Your Computer – SSP Operating System*
Optionally, you can add OS/400 to this system by using path D.	• For more information on path D, see 2.1.4, “Path D: Adding OS/400 to an Advanced 36 Model 436 with SSP 7.5 Installed” on page 18.

2.1.3 Path C: Installing a New Advanced 36 Model 436 with Both OS/400 and SSP 7.5 Preloaded



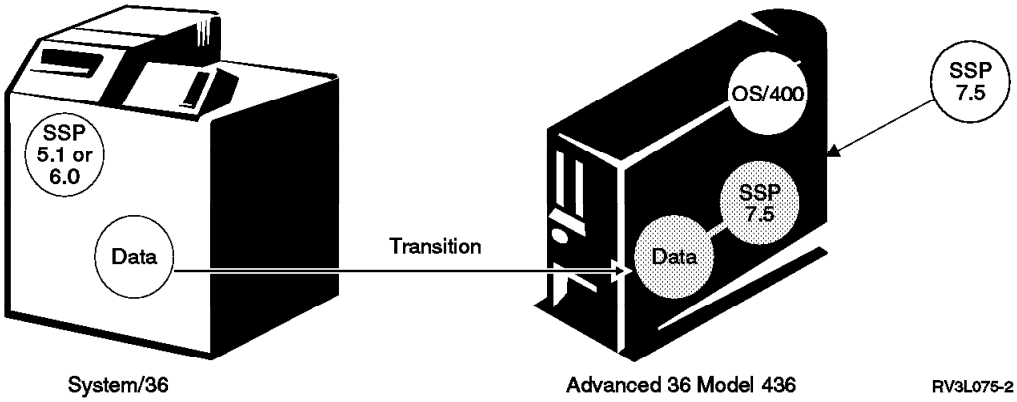
Overview of Tasks	Overview of Documentation
1. Install the Advanced 36 Model 436 hardware.	• *SSP 7.5 Read This First* • *SSP 7.5 Memo to Users* • *Physical Planning Summary*, SX41-4108 • *9402 Model 436 Installation Instructions* • *Fastpath Installation of Your Advanced 36*, SA41-4138
2. Install PTFs for Licensed Internal Code (LIC), OS/400, and SSP.	• *AS/400 PTF Shipping Information Letter*
3. Transition the System/36 data to the Model 436 (if you are replacing a System/36).	• *Fastpath Installation of Your Advanced 36* (and *Operating Your Computer – SSP Operating System*, SC21-8297, if you are not using the Transition Data Link).
4. Move System/36 I/O cables (if you are replacing a System/36).	• *Fastpath Installation of Your Advanced 36* • *Cable Attachment*, SA41-4137
5. Attach cables for new feature cards.	• *9402 Model 436 Installation Instructions*
6. Back up the system.	• *Getting SSP and OS/400 Installed and Running*, SC21-8377
7. Operate the system.	• *Operator Tasks – Multiple Operating Systems*, SC21-8384 • *OS/400 Start Here Binder*
Optionally, you can add another Advanced 36 machine and then optionally replace another System/36 using path E.	• For more information on path E, see 2.1.5, “Path E: Creating a Second Advanced 36 Machine on an Advanced 36 Model 436” on page 19.

2.1.4 Path D: Adding OS/400 to an Advanced 36 Model 436 with SSP 7.5 Installed



Overview of Tasks	Overview of Documentation
1. Plan for installing OS/400.	• *Getting SSP and OS/400 Installed and Running*, SC21-8377
2. Install the OS/400 Licensed Internal Code (LIC).	• *Getting SSP and OS/400 Installed and Running*
3. Install OS/400 on Model 436 with SSP 7.5 already installed.	• *Getting SSP and OS/400 Installed and Running*
4. Install PTFs for Licensed Internal Code (LIC) and OS/400.	• *AS/400 PTF Shipping Information Letter*
5. Set up ILAN communications between OS/400 and SSP (optional).	• *Getting SSP and OS/400 Installed and Running*
6. Back up the system.	• *Getting SSP and OS/400 Installed and Running*
7. Operate the system.	• *Operator Tasks – Multiple Operating Systems*, SC21-8384 • *OS/400 Start Here Binder*
Optionally, you can add another Advanced 36 machine and then optionally replace another System/36 using path E.	• For more information on path E, see 2.1.5, “Path E: Creating a Second Advanced 36 Machine on an Advanced 36 Model 436” on page 19.

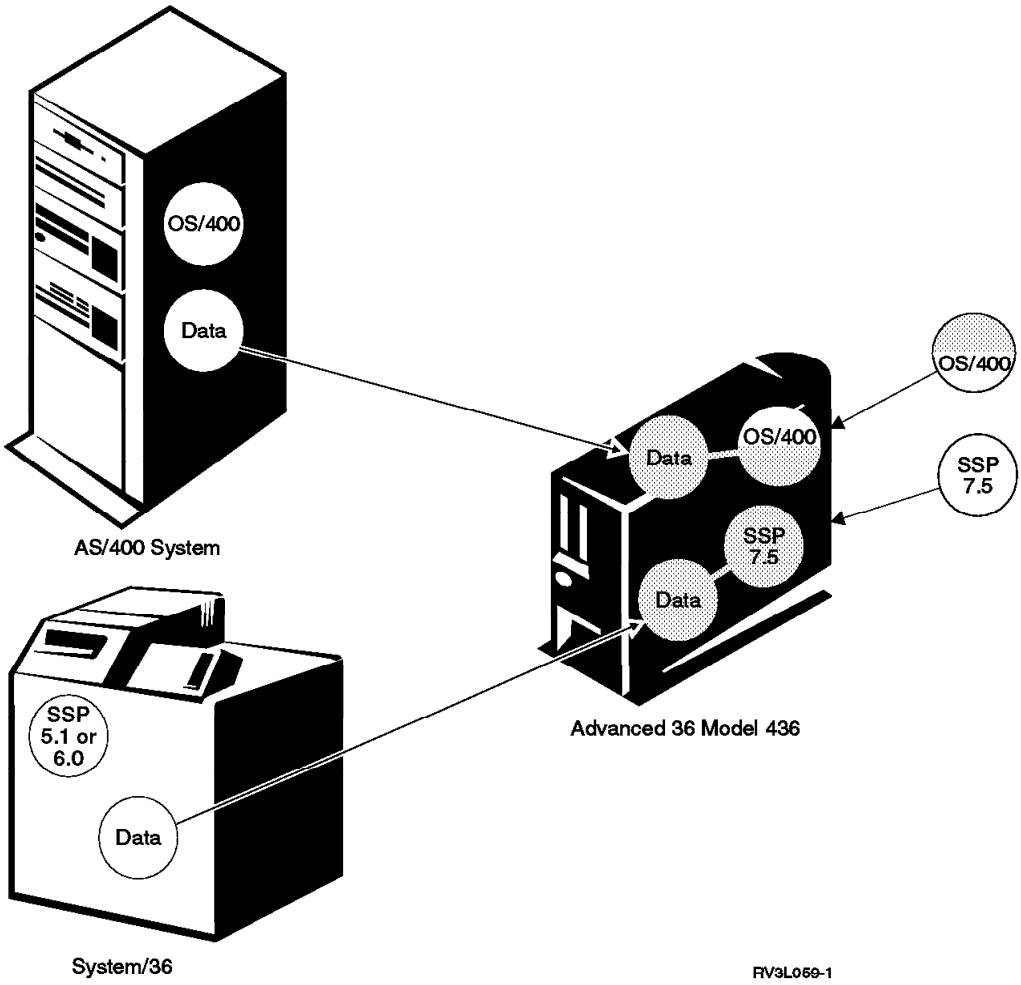
2.1.5 Path E: Creating a Second Advanced 36 Machine on an Advanced 36 Model 436



Overview of Tasks	Overview of Documentation
1. Plan for creating and installing an Advanced 36 machine (SSP machine).	• *SSP 7.5 Read This First* • *SSP 7.5 Memo to Users* • *Getting SSP and OS/400 Installed and Running*, SC21-8377
2. Create an Advanced 36 machine (SSP machine).	• *Getting SSP and OS/400 Installed and Running*
3. Create the new Advanced 36 machine configuration object (SSP machine configuration object).	• *Getting SSP and OS/400 Installed and Running*
4. Start the new Advanced 36 machine specifying a media device name for the IPL Type.	• *Getting SSP and OS/400 Installed and Running*
5. Install SSP 7.5 on the Model 436.	• *Getting SSP and OS/400 Installed and Running*
6. Install 7.5 programming support.	• *Performing the First System Configuration for Your System – SSP*
7. Install PTFs for SSP.	• *AS/400 PTF Shipping Information Letter*
8. Set up ILAN communications between the new SSP machine and OS/400 and other SSP machines (if any) (optional).	• *Getting SSP and OS/400 Installed and Running*
9. Transition the System/36 data to the Model 436 (if you are also replacing a System/36).	• *Fastpath Installation of Your Advanced 36*, SA41-4138, (and *Operating Your Computer – SSP Operating System*, SC21-8297, if you are not using the Transition Data Link).
10. Move System/36 I/O cables (if you are also replacing a System/36).	• *Fastpath Installation of Your Advanced 36* • *Cable Attachment*, SA41-4137
11. Back up the system.	• *Getting SSP and OS/400 Installed and Running*
12. Operate the system.	• *Operator Tasks – Multiple Operating Systems*, SC21-8384

Overview of Tasks	Overview of Documentation
Optionally, you can add another Advanced 36 machine (SSP machine) since up to three SSP machines can operate simultaneously. You may optionally replace another System/36 with Path E.	• Use path E.

2.1.6 Path F: Consolidating an Existing AS/400 OS/400 System and SSP on the Same AS/400 Advanced System



Overview of Tasks	Overview of Documentation
1. Plan for replacing a non-RISC AS/400 system.	• Chapter 3 of *AS/400 Advanced 36 Planning and Reference Handbook*, SA21-9656 • *AS/400 Road Map for Changing to PowerPC Technology*, SA41-4150
2. Install the Advanced 36 Model 436 hardware.	• *OS/400 Start Here Binder* • *Physical Planning Summary*, SX41-4108 • *9402 Models 4xx Installation Instructions*
3. Migrate the OS/400 programs and data.	• *AS/400 Road Map for Changing to PowerPC Technology*
4. Install OS/400 licensed programs.	• *AS/400 Road Map for Changing to PowerPC Technology*
5. Create the additional Advanced 36 machine.	• *SSP 7.5 Read This First* • *SSP 7.5 Memo to Users* • *Getting SSP and OS/400 Installed and Running*, SC21-8377

Overview of Tasks	Overview of Documentation
6. Create the new Advanced 36 machine configuration.	• *Getting SSP and OS/400 Installed and Running*
7. Start the new Advanced 36 machine specifying a media device name for the IPL Type.	• *Getting SSP and OS/400 Installed and Running*
8. Install SSP 7.5 on the Model 436.	• *Getting SSP and OS/400 Installed and Running*
9. Install 7.5 programming support.	• *Performing the First System Configuration for Your System – SSP*
10. Install PTFs for SSP.	• *AS/400 PTF Shipping Information Letter*
11. Set up ILAN communications between the new Advanced 36 machine and OS/400 and other Advanced 36 machines (if any) (optional).	• *Getting SSP and OS/400 Installed and Running*
12. Transition the System/36 data to the Model 436 (if you are replacing a System/36).	• *Fastpath Installation of Your Advanced 36*, SA41-4138, (and *Operating Your Computer – SSP Operating System*, SC21-8297, if you are not using the transition data link).
13. Move System/36 I/O cables (if you are replacing a System/36).	• *Fastpath Installation of Your Advanced 36* • *Cable Attachment*, SA41-4137
14. Back up the system.	• *Getting SSP and OS/400 Installed and Running*
15. Operate the system.	• *Operator Tasks – Multiple Operating Systems*, SC21-8384
Optionally, you can add another Advanced 36 machine (SSP machine) since up to three SSP machines can operate simultaneously. You may optionally replace another System/36 with Path E.	• For more information on path E, see 2.1.5, “Path E: Creating a Second Advanced 36 Machine on an Advanced 36 Model 436” on page 19.

Chapter 3. AS/400 Advanced 36 Configuration Example

As described in Part 1, “Introduction Overview” on page 1, this redbook uses the term **SSP machine** to represent an AS/400 Advanced 36 machine. We also use the term **SSP machine configuration object** to represent an AS/400 Advanced 36 machine configuration object. This object defines communication and device configuration resource specifications that enable proper use of these resources when both OS/400 and up to three SSP machines are *started* (IPLed).

Note: Although there are some configuration examples showing PC connectivity to SSP without OS/400 active, the majority of this redbook is directed toward an environment where OS/400 is operational and one or more SSP machines have been started.

Once you have installed and activated OS/400, it is always operational after your AS/400 Advanced 36 IPL has completed successfully. An SSP machine must be *started* from OS/400. It is very important that the communication line and device resource specifications are defined so that there is either no conflict or ″managed conflict″ by jobs running under an SSP machine or OS/400.

The SSP machine disk storage is managed by SSP as if only SSP were running on the system. OS/400 storage is managed by OS/400 as if only OS/400 were running on the system.

To enable OS/400 support of SSP machines, the OS/400 installation process must include loading the OS/400 ″Advanced 36 SSP″ commands during installation of OS/400. These commands are placed in library QM36 and include the necessary commands to create an SSP machine (OS/400 object type *M36), create an SSP machine configuration object (OS/400 object type *M36CFG), and start a specific SSP machine. The *Work with AS/400 Advanced 36 Machine (WRKM36)* command provides a menu for these Advanced 36 commands.

You can verify that the OS/400 has the Advanced 36 support installed by determining if library QM36 exists and contains programs and data by issuing the Work with AS/400 Advanced 36 Machine (WRKM36) command or by using the OS/400 Display Software Resources (DSPSFWRSC) command. By paging through the DSPSFWRSC displays, you can search for **Advanced 36** to find a display similar to the following.

```
                          Display Software Resources
                                                                System: IM436M06
Resource
   ID     Option  Feature  Description
5716SS1   18       5103    OS/400 - Media and Storage Extensions
5716SS1   20       5050    OS/400 - Advanced 36
5716SS1   20       2924    OS/400 - Advanced 36
5716SS1   22       5050    OS/400 - ObjectConnect
5716SS1   22       2924    OS/400 - ObjectConnect
5716SS1   23       5105    OptiConnect for OS/400
5716SS1   23       2924    OptiConnect for OS/400
5716CB1   *BASE    5050    ILE COBOL/400
5716CB1   *BASE    2924    ILE COBOL/400
5716CB1   5        5050    COBOL/400 - COBOL
5716CB1   5        2924    COBOL/400 - COBOL
5716PT1   *BASE    5050    Performance Tools/400 - Base
5716PT1   *BASE    2924    Performance Tools/400 - Base

Press Enter to continue.                                            More....

F3=Exit   F11=Display libraries/releases   F12=Cancel
```

Special SSP Only to OS/400 Consideration

If OS/400 has been installed on a Model 236 that has been upgraded to a Model 436, or on a new Model 436 that was originally an SSP only system configuration, a default SSP machine and SSP machine configuration are generated that are exactly the same as the previously running SSP configuration with one exception.

The normal OS/400 system console workstation is attached to the exact same workstation controller 1 port 0 and address 0 that the default SSP also wants to use. Both OS/400 and active SSP cannot share the same console device. Therefore, you need two locally attached workstations, one on actual workstation controller 1 port 0 address 0 as the OS/400 system console and the other on actual workstation controller 1 port 0 address 1 as the default SSP machine system console. (In this coexistence environment, SSP ″sees″ this device as port 0 address 0.)

The default SSP machine configuration object enables the SSP machine to operate as it did before installing OS/400 while enabling OS/400 and the SSP machine to operate at the same time. As you begin to use more OS/400 functions, you may find you need to create your own SSP machine configuration object or change an already existing one to enable a sufficient number of workstations to operate under OS/400 and others under an IPLed SSP machine, and to control tape and optical (including CD-ROM) devices and spooled output.

If you use the ″automatically created SSP machine configuration object″ created because SSP was already running on your Advanced 36 before OS/400 was installed, starting the SSP machine causes **all** of the attached local devices and printed output, except the OS/400 console workstation, to be assigned to the SSP machine (**unless a workstation is actively signed on to OS/400**). This is why, as you begin to use OS/400 functions, we recommend that you create your own SSP machine configuration object or change an existing one for proper allocation of devices and disk storage.

The remainder of this redbook assumes you do not want to use the default SSP machine configuration object. For more information detail than what is discussed in this redbook, refer to *Advanced 36 General Information for SSP Operating System*, SC21-8299-01, and ″Changing Your AS/400 Advanced 36 Machine,″ in *Advanced 36 Operator Tasks - Multiple Operating Systems*, SC41-8384.

After configuring an SSP machine object and issuing a STRM36 command with an applied SSP machine configuration object **for the first time**, you should make additional changes to the SSP by using the CNFIGSSP procedure as you would on an original ″heritage System/36″ (SSP releases up through 6.0).

V3R6 OS/400 includes the Start Machine 36 Procedure (STRM36PRC) command to run System/36 SSP procedures in a named SSP machine. V3R6 OS/400 also includes the Transfer to AS/400 Advanced 36 (TFRM36) command which is a kind of display station pass-through from OS/400 to SSP. SSP Release 7.5 support includes a new // RUN400 OCL statement that can run an OS/400 command. Display Station Pass-Through, which has been available for several years, also can be used to access the other operating system. These functions facilitate

usage of cross-operating system capabilities and are discussed later in this chapter.

Note for SSP Only Users

If only SSP (no OS/400) is installed and active, there is no need (or capability) to define an SSP other than through the traditional System/36 CNFIGSSP procedure interface.

3.1 SSP and OS/400 Coexistence Configuration Example

The following figure shows an example of OS/400 V3R6 and SSP 7.5 in *coexistence* on the same Model 436. Coexistence means running SSP and OS/400 at the same time.

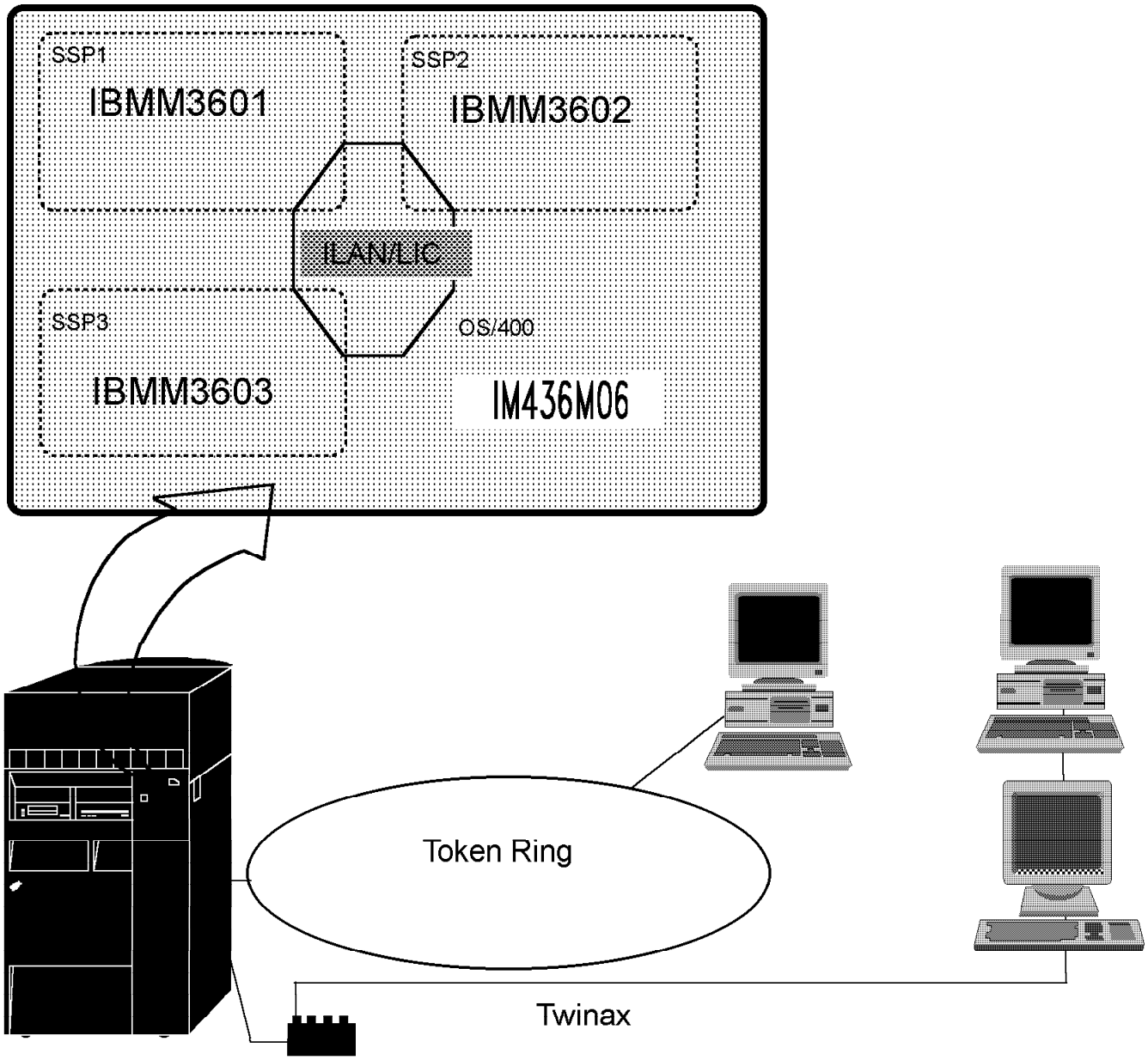


Figure 2. SSP, OS/400 with Local Area Network Example

Figure 2 represents the configuration of the AS/400 Advanced 36 Model 436 at the Rochester International Technical Support Organization (ITSO) center that was used for the examples in this book. PCs and 5250 devices are physically attached through twinax or token-ring port/line to the AS/400 Advanced 36.

The figure illustrates one AS/400 Advanced 36 with three SSP machines started along with OS/400. SSP1, SSP2, and SSP3 are the named SSP machines started by the OS/400 STRM36 command. IBMM3601, IBMM3602, and IBMM3603 are the local location names of each SSP that enable ILAN communication between the SSPs and OS/400. ILAN is the **Internal Local Area Network** available on the Advanced 36 that enables communication capabilities between SSP machines and OS/400 on the same Advanced 36. As we discuss later in Chapter 4, "Internal Local Area Network" on page 75, the ILAN offers several significant capabilities, but is **not required** for running OS/400 functions from SSP or for running SSP procedures from OS/400.

IM436M06 is the formal OS/400 system name, control point name, and local location name of the OS/400 used to communicate between SSP machines and OS/400 as if the SSPs and OS/400 were actual remote systems.

For this example configuration, the V3R6 OS/400 commands, Create Machine 36 (CRTM36), Create Machine 36 Configuration (CRTM36CFG), and Start Machine 36 (STRM36) were used. CRTM36 creates an SSP machine (named SSP1, SSP2, and SSP3 in this example) that defines the amount of disk storage on the AS/400 Advanced 36 to be reserved for each SSP machine. CRTM36CFG initiates a set of menu options to create an OS/400 SSP machine configuration object that can include a communication line, the CD-ROM drive, tape and diskette devices, and twinax display and printer device *assigning* and *mapping*. This assigning/mapping determines which of these resources belong to an SSP machine and which belong to OS/400.

For SSP printer devices, you can specify that SSP spooled output go to an OS/400 spooled output queue.

For communication lines, you may assign the entire line to either an SSP machine or OS/400. All of the devices on that line belong to the SSP machine or OS/400. APPN routing can be optionally configured to use the new **Internal Local Area Network - ILAN** for SSP 7.5 and OS/400 V3R6 to route to either an SSP or OS/400.

The following topics show the sequence of the OS/400 commands to create an SSP machine, define its configuration, and start the specific SSP machine. For detailed information, refer to:

- *AS/400 Advanced 36 Operator Tasks-Multiple Operating Systems*, SC21-8384
- *AS/400 Advanced 36 Coexistence Users Guide*, SC21-8386

3.1.1 Create an SSP Machine Example

The V3R6 OS/400 CRTM36 command is used to create a named SSP machine *M36 object. An SSP machine is represented by an ***M36** object. An SSP machine configuration object (object type ***M36CFG**) must be applied to the SSP machine the first time that SSP machine is started. The SSP machine configuration object is applied through the STRM36 command as described later in this chapter.

Once an SSP machine configuration object has been applied to an SSP machine, the configuration information becomes part of the SSP machine. The SSP machine is then independent of that applied SSP machine configuration object and can be started without specifying any SSP machine configuration object. The previously applied SSP machine configuration object may even be deleted and the SSP machine will start successfully.

```
                        Create Machine (CRTM36)

  Type choices, press Enter

  Machine  . . . . . . . . . .   SSP1           Name
    Library  . . . . . . . . .     SSP1         Name, *CURLIB
  Fixed disk size  . . . . . .   200            80-4080, *MAX
  Automatic sign on  . . . . .   *ENABLE        *ENABLE, *DISABLE
  Text 'description'   . . . .   SSP representing Original System/36, id=000

                         Additional Parameters



  Authority  . . . . . . . . .   *LIBCRTAUT     Name,*LIBCRTAUT,*CHANGE...


  F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
  F24=More Keys
```

Figure 3. Create SSP Machine Example

This CRTM36 example shows 200MB of disk storage is reserved for this SSP machine. 4080 represents 4080 megabytes, the maximum disk storage (approximately 4 gigabytes) supported by each SSP. This space is reserved for SSP operation and is treated by SSP as a single disk drive - A1. Normal AS/400 storage management spreads this space across all of the disks that contain the specified library. SSP ″objects″ (files, procedures, programs, and so on) within this SSP space cannot be seen from OS/400.

Even though the SSP disk storage is physically spread over one or more disk devices, SSP still views the storage area as a single logical space, that could contain ″gaps″ in used storage. Therefore, if your existing SSP only environment includes running the SSP COMPRESS procedure, you should continue to use COMPRESS as you did in an SSP only environment.

The OS/400 library may have been previously created into the system auxiliary storage pool (ASP) by default or a user-defined ASP. Within OS/400, an ASP is defined by assigning disk drives to the ASP. AS/400 systems are shipped so that by default all disks are assigned to the system ASP.

Therefore, a new OS/400 user uses the default system ASP. For normal SSP and OS/400 operation, the default to the system ASP is sufficient. In a more sophisticated AS/400 environment, an OS/400 person with expertise in availability and recovery services may subset the disk drives into separate ASPs and recommend a separate AS/400 ASP for each SSP machine.

Regardless of whether the library is placed in the system ASP or a user ASP, the entire SSP machine including programs and data, can be backed up with an OS/400 Save Library (SAVLIB) command.

Saving an SSP Machine Consideration

Note that once an SSP machine configuration object has been applied to an SSP machine through the STRM36 command, the SSP machine *M36 object itself contains all of the necessary configuration information. Saving and then restoring the SSP machine (*M36 object type) should be sufficient in a recovery situation. Saving the SSP machine configuration object becomes optional.

As you see in 3.1.2, “Create an SSP Machine Configuration Object Example” on page 29, you can create a new SSP machine configuration object by referencing an existing SSP machine object or another existing SSP machine configuration object.

For a complete description of OS/400 backup and recovery support, refer to *AS/400 Backup and Recovery - Basic*, SC41-3304.

Within a started SSP machine, you may use the standard SSP support for saving and restoring SSP configuration members, programs, and data without involving OS/400. This can be important when you attempt to restore or recover a specific file, library, or folder instead of an entire SSP machine.

The parameter ″Automatic sign on (*ENABLE)″ specifies that users who have the same user profile name on the OS/400 and the SSP can automatically sign on to the SSP machine when using the Transfer AS/400 Advanced 36 Machine (TFRM36) or the Start AS/400 Advanced 36 Machine Procedure (STRM36PRC) commands.

*DISABLE means that manually entering a USERID and password is required when using the TFRM36 command. If you *DISABLE, the STRM36PRC command fails because it requires *ENABLE and the same user profile name on both SSP and OS/400.

TRM36 and STRM36PRC commands are discussed later in this chapter.

3.1.2 Create an SSP Machine Configuration Object Example

The V3R6 OS/400 CRTM36CFG command is used to create an SSP machine configuration object (*M36CFG). The configuration attributes that can be applied to an SSP machine are stored in a *M36CFG object. It is recommended that this *M36CFG object be stored in the same library where the *M36 object resides, but this is not required.

```
                 Create Machine Configuration (CRTM36CFG)

 Type choices, press Enter

 Machine configuration  . . .   SSP1C          Name
   Library  . . . . . . . . .     SSP1         Name, *CURLIB
 From machine . . . . . . . .   *NONE          Name, *NONE
   Library  . . . . . . . . .     _________    Name, *LIBL, *CURLIB
 From machine configuration .   *NONE          Name, *NONE
   Library  . . . . . . . . .     _________    Name, *LIBL, *CURLIB
 Text 'description'   . . . .   Device, Line Config. for Daytime SSP1___

                        Additional Parameters


 Authority  . . . . . . . . .   *LIBCRTAUT     Name,*LIBCRTAUT,*CHANGE...

 F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
 F24=More Keys
```

Figure 4. Create SSP Machine Configuration Object Example

CRTM36CFG may optionally specify an existing SSP machine (*M36 object) (for example, SSP1) to be used as a reference when creating the *M36CFG object. If specified, the SSP machine attributes from the referenced *M36 object are copied to the new *M36CFG object. CRTM36CFG may instead optionally specify an existing *M36CFG object to be used as a reference when creating a new *M36CFG object. If specified, the SSP machine configuration object configuration parameter values from the referenced *M36CFG object are copied to the new *M36CFG object. Consider this technique after you have a working SSP machine configuration object and want to either start changing it and keep an unchanged version for backup or you want to create a different SSP machine configuration object and use the existing one as a base. The new SSP machine configuration object can be used for a different SSP machine when you want multiple SSP machines started (IPLed) at the same time.

Duplicating a successful *M36CFG to a newly named SSP machine configuration object and then merely changing the duplicated configuration may speed up the process to get multiple SSP machines IPLed at the same time.

Multiple *M36CFG objects can be created, but at the time an SSP machine is started (STRM36 command), only one can be applied to the SSP machine. An *M36CFG object is similar to an SSP configuration member. While it is not required, consider including the SSP machine name that this configuration uses in the *Text* field.

Remember, you may have multiple SSP machine configuration objects created and apply them to the same SSP machine at different times. For example, you can have daytime and nighttime SSP machine configuration objects that are applied through different STRM36 commands in the morning and at night.

Note: For experienced OS/400 users, the OS/400 Create Duplicate Object (CRTDUPOBJ) command may also be used to copy an SSP machine configuration object (object type *M36CFG).

After the Enter key is pressed on the CRTM36CFG command, the following menu is shown:

```
                              Create M36 Configuration

M36 configuration  . :   SSP1C
  Library  . . . . . :     SSP1

Select one of the following:

     1. Define M36 attributes
     2. Define M36 display and printer devices
     3. Define M36 display and printer device attributes
     4. Define M36 tape and optical devices
     5. Define M36 diskette devices
     6. Define M36 communication lines

Selection __


F3=Exit   F12=Cancel   F19=Validate configuration
(C) COPYRIGHT IBM CORP. 1980, 1995.
```

Figure 5. Create SSP Machine Configuration Object Menu Example

The following discusses each of the six options on the Create M36 Configuration menu. Note that on this menu, F19=Validate configuration. **You must take this option before exiting the Create M36 Configuration menu**. If you do not do this, you may have problems that are not discovered until after you have started an SSP machine.

1. Create M36 Configuration menu, option 1.

   The following display is shown.

```
                               Define M36 Attributes
M36 configuration  . :   SSP1C
  Library  . . . . . :     SSP1
Type choices, press Enter.
  IPL type . . . . . . .   *UNATTEND      *UNATTEND, *ATTEND
  User profile . . . . .   QUSER          Name




                                                                      Bottom
F3=Exit   F5=Refresh   F12=Cancel
```

Figure 6. Create SSP Machine Configuration Object Menu Example

Define M36 attributes (Figure 6) enables the user to define the SSP default IPL type - *ATTENDed or *UNATTENDed. Later, when the specific SSP machine is started with the STRM36 command, this default IPL type may be selected or overridden.

If *ATTEND is specified, part of the IPL process stops and displays the IPL Signon display on the system console. The operator must sign on to enable the IPL to continue. While signed on, the operator can set the SSP machine date and time and other IPL overrides.

Define M36 attributes may also define the user profile that is used by the OS/400 server job (explained later in this chapter in Figure 35 on page 61) for handling AS/400 requests from the SSP machine.

QUSER profile is shown here under Define M36 Attributes as the default OS/400 user profile. QUSER is shipped with OS/400 and eases usage of OS/400 functions. QUSER has authority to use many OS/400 functions, but limited authority to create and delete objects and update or add records. As you use more OS/400 functions, you may want to create and use your own

OS/400 user profile with appropriate authority. The user profile specified here may also be assigned to output generated by the following Advanced 36 functions described later in this chapter:

- The SSP // RUN400 OCL statement
- The OS/400 Start AS/400 Advanced 36 Procedure (STRM36PRC) command
- The OS/400 Transfer to AS/400 Advanced 36 (TFRM36) command
- SSP printed output directed to an OS/400 spooled output queue (OUTQ)

See 3.1.3, “Start the SSP Machine Example” on page 60, 3.2.2, “SSP User // RUN400 OCL Statement Examples” on page 67, and 3.2.4, “Printed Output User ID Assignment Summary” on page 71 for more information.

Saving SSP Machine Configuration Object Attributes, Definitions

While using the Create M36 Configuration menu options, you may exit the creation process at any time. In order to save your specifications, you must select ″option 1, save and exit″ on the following exit display.

```
                              Exit M36 Configuration


  Type choices, press Enter.

    Option . . . . . . .   1              1=Save and exit
                                          2=Exit without save

    M36 configuration      SSPC1___       Name
      Library  . . . . .     SSP1         Name, *CURLIB
    Description  . . . . SSP Machine Config for Daytime SSP1___



   F5=Refresh   F12=Cancel
```

2. Create SSP Machine Configuration Object menu, option 2.

   Define M36 display and printer devices shows the following display:

```
                         Dfn M36 Display and Printer Dev

 M36 configuration  . :   SSP1C
   Library  . . . . . :     SSP1

 Type values, press Enter.

     M36             AS/400
 Work Station     Work Station
  Controller       Controller
      1            _________
      2            _________
      3            _________
      4            _________

 F3=Exit   F4=Prompt   F5=Refresh   F10=Set defaults   F12=Cancel
 F21=Devices
```

Figure 7. Define M36 Display and Printer Devices, Display 1

The purpose of the Define M36 Display and Printer Device option is to map OS/400 local workstation physical device names to SSP machine logical workstation Ids (Wn, Pn), based on local workstation controller port and address values. Local display and printer devices can be **mapped** so that an SSP machine ″knows″ about the device. A mapped display or printer can be

used by either an SSP machine or OS/400. A local display device that has been mapped may also be **assigned** so that the display device is under control of an SSP machine when that SSP machine has been started.

Mapping workstations to an SSP machine permits:

- Auto configuration to SSP:

  SSP auto configuration is performed when an SSP machine is started (IPLed).

- Defaulting an OS/400 physical display device description name to an SSP logical workstation ID based on an SSP port and address value when the OS/400 display device user does an OS/400 TFRM36 or STRM36PRC command to the named SSP machine.

- Associating SSP printed output to a logical printer workstation ID (Pn) with an OS/400 physical printer device name based on an SSP port and address.

You may use this option to define or change the mapping or assigning of local displays and printers. You can map an entire AS/400 local workstation controller (all displays and printers) or selected local workstation devices to an SSP machine. More details on SSP logical workstation ID to OS/400 physical workstation device description name mapping follow in this chapter.

Use of *controller mapping* is comparable to an SSP only AS/400 Advanced 36. Use specific *device mapping* when you do not normally want a specific display device or printer to be used by a started SSP machine. If you plan to have multiple SSP machines started at the same time, you may find it easier to use device mapping than controller mapping.

To begin controller mapping, you may select either F4=Prompt or F10=Set defaults. F4=prompt shows a list of AS/400 local workstation controller names that can be selected from. F10=select can be used to automatically ″enter″ an AS/400 local workstation controller name into the ″AS/400 Work Station Controller″ field to the right of the corresponding SSP ″M36 Work Station Controller″.

The location of the display cursor is important when using these function keys. For example, assume there are actually two AS/400 local workstation controllers on the system - CTL01 or CTL02. F4=Prompt displays a list that shows CTL01 and CTL02. Selecting CTL01 causes CTL01 to be automatically placed to the right of M36 controller 2 if the cursor had been positioned to that input field when F4 was used. F10 ignores the input field cursor position. Using F10 causes CTL01 to be automatically entered for M36 controller 1 and CTL02 to be automatically entered for M36 controller 2.

We used F10=Set defaults on our system which had only one local workstation controller - CTL01 as shown in Figure 8 on page 34:

```
                          Dfn M36 Display and Printer Dev

 M36 configuration  . :   SSP1C
   Library  . . . . . :     SSP1

 Type values, press Enter.

 Work Station     Work Station
  Controller       Controller
      1            CTL01_____
      2            __________
      3            __________
      4            __________

 F3=Exit   F4=Prompt   F5=Refresh   F10=Set defaults   F12=Cancel
 F21=Devices
```

Figure 8. SSP Machine Display, Printer Devices, Controller Mapping 1 of 2

On this Advanced 36, there is only one local workstation controller.

From this display, take F21=Devices, and get a display similar to the one in Figure 9:

```
                      Display M36 Display and Printer Dev

M36 configuration  . :   SSP1C           M36 controller . . . :   1
  Library  . . . . . :     SSP1          AS/400 controller  . :   CTL01

                                      Port
                                     Address
      0          1          2          3          4          5          6
0 DSP08      DSP01      DSP09                                DSP10      PRT01
1 DSP02      DSP03      DSP04      DSP05      DSP06      DSP07      PRT02
2
3
4
5
6
7


Press Enter to continue.

F3=Exit   F12=Cancel
```

Figure 9. SSP Machine Display, Printer Devices, Controller Mapping 2 of 2

In Figure 9, all display and printer devices known by OS/400 to be attached to workstation controller 1 are **unconditionally** mapped to the SSP machine. You see the OS/400 device description names and their actual port number and address (OS/400 ″switch setting″) as cable attached to workstation controller 1 on the Advanced 36, **except for the SSP and OS/400 console devices.**

Since both OS/400 and SSP require the console to be on port 0, address/switch setting 0, CRTM36CFG interchanges the names of the devices actually on port 0 address/switch setting 0, and port 0 address/switch setting 1. In this example, OS/400 device DSP08 is mapped to SSP machine port 0 address 0 and becomes the console device for the SSP machine that uses this SSP machine configuration object. OS/400 DSP01 is the OS/400 console device actually cabled to port 0 switch setting 0, though it appears to SSP as port 0 address 1.

You may use controller mapping when you begin using OS/400 functions and want an SSP machine to know of all devices attached to a local workstation controller and **you want to enable an SSP machine to perform auto configuration for devices on that controller.**

With controller mapping, any new device cabled to that controller and powered on is auto configured to the SSP machine that has this SSP machine configuration object applied. A ″new″ device is automatically configured by the started SSP and included in the SSP master configuration record.

You may also use *device mapping* on one or more workstation controllers or a combination of controller mapping and device mapping on separate controllers.

With device mapping you can selectively map local display and printer names. You use device mapping when you do not want an SSP machine to ″know about″ all physical display and printer device names on a local workstation controller. Remember, from a device usage viewpoint *controller mapping* or *device mapping* define to the SSP machine the port and address that SSP uses to correspond an SSP logical workstation ID (Wn, Pn) to an OS/400 device description name, based on the SSP understanding of a port and address combination. This mapping enables SSP applications to use the SSP Wn or Pn logical ID for the real physical device known to OS/400.

It is important to note that when device mapping is used, a **new device added to a local workstation controller is not automatically configured by the SSP machine the next time the SSP machine is started.** If you use device mapping and want a ″new″ device to be mapped to an SSP machine, you have to add the device to the SSP configuration object and then apply this changed configuration on the next STRM36 command.

Note: SSP auto configuration is separate from OS/400 auto configuration for these same devices. OS/400 auto configuration is enabled through the OS/400 system value QAUTOCFG. Regardless of whether OS/400 auto configuration is used or an explicit OS/400 Create Device Description for Displays (CRTDEVDSP) or Create Device Description for Printers (CRTDEVPRT) command was used to create an OS/400 device description, a named local workstation OS/400 device description must exist before that workstation can be mapped to an SSP machine.

You specify device mapping by entering *DEV under the heading ″AS/400 Work Station Controller,″ input field to the right of the heading ″M36 Work Station Controller″ as shown in Figure 10:

```
                          Dfn M36 Display and Printer Dev

M36 configuration  . :   SSP1C
  Library  . . . . . :     SSP1

Type values, press Enter.

    M36             AS/400
Work Station     Work Station
 Controller       Controller
     1            *DEV_____
     2            _________
     3            _________
     4            _________

F3=Exit   F4=Prompt   F5=Refresh   F10=Set defaults   F12=Cancel
F21=Devices
```

Figure 10. SSP Machine Display, Printer Devices, Device Mapping 1 of 4

After specifying *DEV for work station controller 1, use F21=Devices. A display similar to the one in the following figure is shown:

```
                         Dfn M36 Display and Printer Dev

M36 configuration  . :   SSP1C           M36 controller . . . :   1
  Library  . . . . . :     SSP1          AS/400 controller  . :   *DEV

Enter the AS/400 device names you want attached to the M36 controller.

                                      Port
                                     Address
      0         1         2         3         4         5         6
0 ________ ________ ________ ________ ________ ________ ________
1 ________ ________ ________ ________ ________ ________ ________
2 ________ ________ ________ ________ ________ ________ ________
3 ________ ________ ________ ________ ________ ________ ________
4 ________ ________ ________ ________ ________ ________ ________
5 ________ ________ ________ ________ ________ ________ ________
6 ________ ________ ________ ________ ________ ________ ________
7 ________ ________ ________ ________ ________ ________ ________


F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F16=Autofill from controller
```

Figure 11. SSP Machine Display, Printer Devices, Device Mapping 2 of 4

If you know the OS/400 device names you want to map, you may manually enter them under the SSP machine port (row) and address (column) input fields. You can enter any valid OS/400 display or printer name at any SSP port and address value. The OS/400 display device name entered for port 0 address 0 for workstation controller 1 becomes the console device for the SSP machine.

You may also use F16=Autofill from controller. This can configure all of the devices **currently** defined to OS/400 for a specific local workstation controller. With F16, you can leave the devices as shown in Figure 12, manually type a valid OS/400 local display or print device name, or blank out the devices you do not want mapped to the SSP machine. As discussed under controller mapping, CRTCFGM36 automatically switches the OS/400 devices on port 0 switch setting 0 and port 0 switch setting 1 if you use F16.

Figure 12 shows an example of F16 with device mapping for local workstation controller 1. The same devices are displayed as we saw for controller mapping, except with device mapping the device fields are input capable (as indicated by the underscore (_) characters for each port and address).

```
                         Dfn M36 Display and Printer Dev

M36 configuration  . :   SSP1C           M36 controller . . . :   1
  Library  . . . . . :     SSP1          AS/400 controller  . :   *DEV

Enter the AS/400 device names you want attached to the M36 controller.

                                      Port
                                     Address
      0         1         2         3         4         5         6
0 DSP08____ DSP01____ DSP09____ ________ ________ DSP10____ PRT01____
1 DSP02____ DSP03____ DSP04____ DSP05____ DSP06____ DSP07____ PRT02____
2 ________ ________ ________ ________ ________ ________ ________
3 ________ ________ ________ ________ ________ ________ ________
4 ________ ________ ________ ________ ________ ________ ________
5 ________ ________ ________ ________ ________ ________ ________
6 ________ ________ ________ ________ ________ ________ ________
7 ________ ________ ________ ________ ________ ________ ________


F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F16=Autofill from controller
```

Figure 12. SSP Machine Display, Printer Devices, Device Mapping 3 of 4

In our example, we chose only a subset of the devices to map and we added ***OUTQ** as shown in Figure 13 on page 37:

```
                         Dfn M36 Display and Printer Dev

M36 configuration  . :   SSP1C          M36 controller . . . :   1
  Library  . . . . . :     SSP1         AS/400 controller  . :   *DEV

Enter the AS/400 device names you want attached to the M36 controller.

                                      Port
                                     Address
      0         1         2         3         4         5         6
0 DSP08____ _________ DSP10____ _________ _________ _________ PRT01____
1 DSP02____ _________ _________ _________ _________ _________ PRT02____
2 _________ _________ _________ _________ _________ _________ _________
3 _________ _________ _________ _________ _________ _________ _________
4 _________ _________ _________ _________ _________ _________ _________
5 _________ _________ _________ _________ _________ _________ _________
6 _________ _________ _________ _________ _________ _________ *OUTQ____
7 _________ _________ _________ _________ _________ _________ _________


F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F16=Autofill from controller
```

Figure 13. SSP Machine Display, Printer Devices, Device Mapping 3 of 4

In our example, we have mapped only OS/400 devices DSP08, DSP10, PRT01, DSP02, and PRT02. While we could have mapped any OS/400 local device, regardless of its actual (physical) port and switch setting to any SSP port and address, we chose to map devices DSP02, PRT01, and PRT02 at the same SSP logical port and address as their OS/400 physical port and switch setting. DSP08 is actually OS/400 port 0 address 1. We mapped OS/400 device DSP10 (actually connected to port 0 switch setting 5) to SSP logical port 0 address 2.

We have specified *OUTQ at port 6 address 6 so that SSP output directed to a printer ID at SSP port 6 address 6 is actually placed on an OS/400 spooled output queue instead of to the SSP spooled file.

*OUTQ support is not auto configured by SSP. You need to define a print device defined within SSP at the corresponding SSP configuration port 6 address 6 as shown for CNFIGSSP in Figure 14:

```
40.0   CNFIGSSP - WORK STATION ID ASSIGNMENTS                  FAXCNFIG
                              REVIEW MODE
Change the work station ID, assigned printer, or subconsole
assignment.



        Port number  . . . . . . . . .    06
        Work station address . . . . .    0   1   2   3   4   5   6
        Device code  . . . . . . . . .                            PH

     1. Work station ID  . . . . . . .                            P6

     2. Assigned printer ID  . . . . .

     3. Subconsole ID  . . . . . . . .                            W1


   Cmd3-Previous menu      Cmd19-Cancel
 Printer. . . P1   Port. . . 00   Address. . . 6
 Is currently the system printer
```

Figure 14. SSP Printer Assignment for OS/400 OUTQ

In our example, we have defined printer device P6 as an IPDS printer (device code PH). Whenever an SSP job produces printed output to P6, the output goes directly to the OS/400 spooled output queue defined in Figure 18 on page 41.

There is no real P6 printer attached to the AS/400 Advanced 36 in this example. This same ″P6″ printer assignment is used later in Chapter 18, “Facsimile Support for OS/400 for the SSP Operator” on page 299. Refer to that chapter for more information on managing printing between SSP and OS/400.

Table 1 is an example of the device - port mapping possible between an SSP and OS/400 for twinax attached devices. The OS/400 port and address (switch setting) values are the actual physically connected and defined values. The OS/400 values are mapped to the SSP values.

Table 1. AS/400 System to SSP Device Mapping Example

OS/400			***M36CFG Mapping**		**SSP Configuration**		
Devd	**Port**	**Addr**	**Port**	**Addr**	**Addr**	**Port**	**WS ID**
DSP08	0	1	0	0	0	0	W1
DSP10	0	5	0	2	0	2	W2
PRT01	0	6	0	6	0	6	P1
DSP02	1	0	1	0	1	0	W3
PRT02	1	6	1	6	1	6	P2
*OUTQ	NA	NA	6	6	6	6	P6

Note: The OS/400 System Console (physical address port 0 address 0 **should not** be the SSP machine system console. In this example, DSP08 is the SSP system console (**mapped** port 0 address 0). When configuring for multiple SSP machines to be started (IPLed) at the same time, each SSP machine should have defined a different OS/400 display device mapped to port 0 address 0 as the SSP console.

You may use display devices with multiple sessions, each with its own address, and you may use display devices with multiple sessions that share the same address.

NA means not applicable - *OUTQ is not a real device.

Physical and Logical Workstation Terminology

The OS/400 **Devd** (device description name) is considered the **physical workstation** name in AS/400 Advanced 36 documentation. The **WS ID** (Wn for displays and Pn for printers) is considered the SSP **logical workstation** ID in AS/400 Advanced 36 documentation. The Wn and Pn logical workstation IDs known to an SSP machine can be determined by performing the following steps on the SSP machine **after the SSP machine has been started with the appropriate SSP machine configuration object applied.**

1. On the SSP machine, enter CNFIGSSP:
   a. Select Option 3, Review a configuration.
   b. Select Option 5, review Master configuration.
   c. Press the Enter key to exit the configuration member display that shows the configuration member description, main storage size, and disk storage size.
   d. Select Option 1, Work with display stations and printers.
   e. Select Option 6, Change display station or printer work station IDs:

      By rolling through these displays, you can determine the logical port and address assignment for each logical workstation ID (Wn or Pn).
2. On OS/400, enter either:

   ```
   DSPM36 M36(SSP1/SSP1) OUTPUT(*PRINT)
   ```

   or

   ```
   WRKM36 M36(SSP1/SSP1) and take Option 6, Print
   ```
3. Correlate the SSP configuration member port and address values obtained from the SSP CNFIGSSP steps with the OS/400 display and printer device mapping output obtained from the OS/400 DSPM36 or WRKM36 command.

   The port and address values are the link between the SSP Wn or Pn logical workstation ID and the OS/400 device description name.

The physical workstation and logical workstation terms are used in explaining how an SSP logical workstation ID is selected when the Transfer to AS/400 Advanced 36 (TFRM36) command is issued from an OS/400 physical workstation. See 3.2.1.1, “Transferring from a Mapped Workstation” on page 66 and 3.2.1.2, “Transferring from an Unmapped Workstation” on page 66 for workstation selection information.

Figure 15 on page 40 shows an example of CNFIGSSP logical workstation IDs W1, W2, and P1 that can be correlated with the OS/400 display device description names shown in Figure 13 on page 37 for port 0 address 0, port 0 address 2 and port 0 address 6: W1 is DSP08, W2 is DSP10 and P1 is PRT01.

```
40.0   CNFIGSSP - WORK STATION ID ASSIGNMENTS                    FAXCNFIG
                          REVIEW MODE
Change the work station ID, assigned printer, or subconsole
assignment.



        Port number  . . . . . . . . .    00
        Work station address . . . . .    0   1   2   3   4   5   6
        Device code  . . . . . . . . .    10                  16  HA

     1. Work station ID  . . . . . . .    W1  __  W2  __  __  __  P1

     2. Assigned printer ID  . . . . .    P1  __  __  __  __  __  __

     3. Subconsole ID  . . . . . . . .    __  __  __  __  __  __  W1



Cmd3-Previous menu      Cmd19-Cancel
Printer. . . P1   Port. . . 02   Address. . . 0
Is currently the system printer
```

Figure 15. SSP CNFIGSSP Logical Workstation ID Example

OS/400 does the auto configuration provided that system value QAUTOCFG is set on (value of 1), which creates an OS/400 device description name. DSPnn is used for display devices and PRTnn is used for printer devices. You can see the OS/400 configured display and printer devices for local workstation controller CTL01 used in our example by issuing the OS/400 WRKCFGSTS (Work with Configuration Status) command:

```
WRKCFGSTS *CTL CTL01
```

Figure 16 shows an example display for the WRKCFGSTS command.

```
                         Work with Configuration Status                IM436M06
                                                            06/10/96  12:50:35
Position to  . . . . . __________   Starting characters ___________
Type options, press Enter.
  1=Vary on   2=Vary off   5=Work with job   8=Work with description
  9=Display mode status ...
Opt  Description       Status                -------------Job--------------
     CTL01             ACTIVE
__     DSP03           VARY ON PENDING
__     DSP04           VARY ON PENDING
__     DSP05           VARY ON PENDING
__     DSP06           VARY ON PENDING
__     DSP07           VARY ON PENDING
__     DSP02           ACTIVE                DSP02       COOL        001005
8_     DSP08           SIGNON DISPLAY
__     DSP01           SIGNON DISPLAY
                                                                      More...
Parameters or command
===> ____________________________________________________________
F3=Exit   F4=Prompt   F12=Cancel   F23=More options   F24=More keys
```

Figure 16. OS/400 Work with Configuration Status for Controller CTL01

To see the port and address (switch setting) on device DSP08, you enter 8=Work with Description. On the next display (not shown), enter 5=Display to get the following display:

```
                          Display Device Description                IM436M06
                                                              06/10/96  13:03:07
 Device description . . . . . . . . :   DSP08
 Option . . . . . . . . . . . . . . :   *BASIC
 Category of device . . . . . . . . :   *DSP
 Device class . . . . . . . . . . . :   *LCL
 Device type  . . . . . . . . . . . :   3477
 Device model . . . . . . . . . . . :   FA
 Port number  . . . . . . . . . . . :  0 1
 Switch setting . . . . . . . . . . :  1
 Online at IPL  . . . . . . . . . . :   *YES
 Attached controller  . . . . . . . :   CTL01
 Keyboard language type . . . . . . :   USB
 Character identifier . . . . . . . :   *KBDTYPE
 Allow blinking cursor  . . . . . . :   *YES
 Print device . . . . . . . . . . . :   *SYSVAL
 Output queue . . . . . . . . . . . :   *DEV
                                                                     More...
 Press Enter to continue
 F3=Exit   F11=Display keywords   F12=Cancel
```

Figure 17. OS/400 Work with Configuration Status for Controller CTL01

In the center **1** of the Display Device Description display, you can see port 0 switch setting (SSP address) 1.

S/36 auto configuration works based on the SSP machine configuration object parameters applied when the SSP machine is started (IPLed) through the STRM36 command and the mapped devices are powered on. They are recognized by the SSP machine and the Master Configuration Record is updated.

It is sufficient that the device has been powered on and ″reported in″ to the OS/400 since OS/400 was IPLed. The device can be powered off (OS/400 VARY ON PENDING status) when the SSP machine was started.

However, remember that if device mapping is used, a new display or printer device cabled to the AS/400 system (not defined on the CRTM36CFG Dfn M36 Display and Printer Dev display) is not auto configured to an SSP machine.

3. Create SSP Machine Configuration Object menu, option 3.

   Define M36 display and printer device attributes (Figure 18) shows a display where the ″Display M36 sign on at IPL″ attribute applies only to mapped display devices and the ″Spooling Attribute″ applies only to mapped print devices.

```
                          Def M36 Dsp and Prt Dev Attr
 M36 configuration  . :   SSP1C           M36 controller . . . :   1
   Library  . . . . . :     SSP1          AS/400 controller  . :   *DEV
                     AS/400          Display M36
 Port     Addr      Device         signon at IPL     Spooling Attribute
  0        0        DSP08                Y_          *S36_____________
  0        2        DSP10                N_          *S36_____________
  0        6        PRT01                N_          *S36_____________
  1        0        DSP02                Y_          *S36_____________
  1        6        PRT02                N_          *DEV_____________
  6        6        *OUTQ                N_          QGPL/QPRINT______


                                                                      Bottom
 F3=Exit   F5=Refresh   F12=Cancel
```

Figure 18. Define M36 SSP Machine Display, Printer Attributes, Option 3

The heading ″Display M36 Signon at IPL″ is used to define if the mapped display device is to be **assigned** to the SSP machine at IPL time (STRM36

command). **It is very important that you understand the significance of this parameter**.

The value Y (Yes) specifies to have the SSP Signon display shown on the workstation display device after the SSP IPL has completed (started by the STRM36 command). You typically assign a device to SSP when it is started if you want to run an SSP application on this SSP machine all or most of the time.

Type an ″N″ (No) to leave this device under control of OS/400, where an OS/400 job can do its normal AS/400 work and still be able to transfer a local display device workstation to an active SSP machine (TFRM36 command), pass through to the target SSP (STRPASTHR command), or issue Start M36 Procedure (STRM36PRC) commands.

Important

Every display device that has a ″Y″ specified is ″acquired″ (″assigned″) to the SSP machine during IPL unless the device is already signed on to an OS/400 job or is the OS/400 console device. If an SSP assigned display device is signed on to an OS/400 job and later signs off, that display device is immediately acquired by the already started SSP machine. Once acquired by an SSP, the display device remains under control of the SSP machine until the SSP is powered off. As long as the SSP machine is active (started), an assigned (″Y″ device) device cannot be ″returned″ to OS/400.

Printer devices (and other non-display devices) are not **assigned** to an SSP machine. A printer device is ″serially reusable″ among operating systems. This means when a job in one operating system (SSP or OS/400) is finished with the device, a job in that same operating system or another operating system may use the device.

The ″sharing″ of a display device is different from the other devices in another way. If desired, the user of a display device can temporarily ″pass-through″ between SSP or OS/400 using the SSP PASSTHRU procedure or the OS/400 Start Pass-Through (STRPASTHR) command. Also, an OS/400 workstation user can ″transfer to″ an SSP machine using the Transfer to AS/400 Advanced 36 (TFRM36) command. More information on device sharing is found in 3.1.2.2, “Sharing Devices Among SSPs and OS/400” on page 52.

Figure 19 on page 43 shows a WRKCFGSTS display **after SSP machine SSP1 was started with SSP Machine Configuration Object SSP1C applied**.

```
                        Work with Configuration Status                IM436M06
                                                            06/10/96  13:05:35
Position to  . . . . .  __________   Starting characters __________
Type options, press Enter.

  1=Vary on   2=Vary off   5=Work with job   8=Work with description
  9=Display mode status ...

Opt  Description       Status                -------------Job--------------
     CTL01             ACTIVE
__     DSP03           VARY ON PENDING
__     DSP04           VARY ON PENDING
__     DSP05           VARY ON PENDING
__     DSP06           VARY ON PENDING
__     DSP10           ACTIVE                DSP10       COOL        002243
__     DSP02           ACTIVE                QM36000     POWER       002255
__     DSP08           ACTIVE                QM36000     POWER       002255
__     DSP01           SIGNON DISPLAY
                                                                       More...
Parameters or command
===> ____________________________________________________________________
F3=Exit   F4=Prompt   F12=Cancel   F23=More options   F24=More keys
```

*Figure 19. OS/400 WRKCFGSTS *CTL CTL01 After STRM36*

Note the OS/400 job that is using devices DSP02 and DSP08 (Display M36 Signon at IPL Y). Job QM36000 represents an **AS/400 Advanced 36 server job**. There is one such server job for each started SSP machine. From an OS/400 viewpoint, this job ″owns the display device″ that is actually assigned to the started SSP machine based on the SSP machine configuration object last applied to that SSP machine. While the SSP machine remains started, the device is not available to other OS/400 jobs and is running under SSP until the associated SSP machine SSP1 is powered off.

The QM36000 job is discussed later in the description in Figure 35 on page 61.

All devices specified as ″Y″ are assigned to the SSP machine during SSP IPL when the STRM36 command is issued unless the device is in use by an OS/400 job at the time of IPL. If an OS/400 workstation user ends the job using one of these devices, the device is automatically assigned to the appropriate SSP machine. In this example, DSP01 is not specified in the applied SSP machine configuration object so it remains allocated to OS/400 when its status shows SIGNON DISPLAY. Mapped display device DSP10 was specified as ″N″ (No) under ″Display M36 Signon at IPL,″ so it also remains allocated to OS/400. As shown, DSP10 is running an OS/400 interactive job.

If the device was specified as ″Y″ (assigned to SSP), the SSP user could use the // RUN400 OCL statement to run an OS/400 command. This OS/400 command runs within an OS/400 batch job. An assigned display device may use SSP Display Station Pass-Through (PASSTHRU) to run an OS/400 interactive job as long as the SSP machine is active and the Internal LAN (ILAN) is communicating between SSP and OS/400. (ILAN is discussed in the next chapter).

In this ″Define M36 Display and Print Device Attributes″ example (Figure 18 on page 41), *OUTQ under heading ″AS/400 Device″ means that SSP spooled output for an SSP device mapped to port 6 address 6 is to be placed on the OS/400 spooled output queue named under the heading ″Spooling Attribute.″

*DEV for PRT02 means SSP output directed to the SSP logical workstation ID Pn that is mapped to PRT02 is placed on an OS/400 spooled queue named PRT02.

A complete discussion of SSP spooling as defined under the ″Spooling Attribute″ heading in Figure 18, is as follows:

*S36 (or blank) Specifies there is no spooling being performed for this device by OS/400. SSP spooling, direct printing, or in the case of a display device, no spooling is being performed. *S36 is the default value. In our example, SSP direct print or SSP spooling is used for device PRT01.

*DEV Specifies that the AS/400 output queue with the *same name* as the mapped OS/400 printer device (PRT02 in our example) is used to spool SSP printed output. This **requires SSP output be directed to the SSP CNFIGSSP defined printer at this device address.** *DEV does not auto configure as a printer to the SSP. See the description of **Physical and Logical Workstation Terminology** that follows Table 1 on page 38 for how to determine the Pn to PRTnn mapping.

Output queue Specifies the OS/400 qualified output queue name that is used for spooled files **when SSP output is directed to the SSP CNFIGSSP defined printer at this device address.** An OS/400 ″qualified name″ is represented by the library name the object is stored in, followed by the ″forward slash″ character (/), followed by the object name - library-name/object-name. This must be specified if *OUTQ is specified for the OS/400 device. For *OUTQ, QGPL/QPRINT is the default AS/400 output queue assigned. This is output queue QPRINT stored in library QGPL. Refer to Figure 14 on page 37 for an example of the SSP specification for printer P6 that corresponds to the OS/400 *M36CFG example shown in Figure 18 on page 41. *OUTQ does not auto configure as a printer to the SSP.

In this *OUTQ example, SSP output directed to printer ″P6″ is redirected to OS/400 OUTQ QGPL/QPRINT (*OUTQ from Figure 18 on page 41). In the fax example shown in Chapter 18, “Facsimile Support for OS/400 for the SSP Operator” on page 299, the OS/400 OUTQ QGPL/FAXOUT is specified to a separate fax output from other printed output.

4. Create SSP Machine Configuration Object, menu option 4.

CRTM36CFG Options 4 to 6

Options 4 to 6 define the mapping of OS/400 tape, CD-ROM, diskette, and communication lines to the SSP machine devices.

SSP Release 7.5 provides the CHGSYSVL (Change System Value) OCL statement DEVMAP (device map) parameter to temporarily override the device mapping specified through CRTM36CFG for tape, optical, and diskette devices and communication lines. For further details, see the ″CHGSYSVL DEVMAP Parameter″ section of *Advanced 36 General Information for SSP Operating System*, SC21-8299.

The following figures show examples of Tape and Optical Device configuration.

Figure 20 on page 45 is the first display shown after taking option 4 - **Define M36 tape and optical devices**.

.

```
                        Define M36 Tape and Optical Dev

 M36 configuration  . :   SSP1C
   Library  . . . . . :     SSP1

 Type values, press Enter.

  M36       AS/400 Tape
  Tape      or Optical
 Device       Device
   T1       ________
   T2       ________
   TC       ________


 F3=Exit   F4=Prompt   F5=Refresh   F10=Set defaults   F12=Cancel
```

Figure 20. Define M36 Tape and Optical Devices - No Devices Selected

OS/400 auto configures tape device description names as TAPnn and optical device description names as OPTnn.

If you already know the OS/400 device names for a tape device or optical device attached to your system, you may enter them into the fields under heading ″AS/400 Tape or Optical Device.″ You can also use F4=Prompt or F10=Defaults to assist you in assigning the OS/400 device name to the SSP machine ″M36 Tape Device″ T1, T2, or TC. SSP normally expects T1 and T2 to be a 1/2-inch reel tape drive or a 1/2-inch tape cartridge drive, and TC to be a 1/4-inch cartridge or 8mm cartridge tape drive. These are the defaults, depending on the actual tape and optical devices attached to your system. You can map any tape or optical device to T1, T2, or TC.

Figure 21 shows the display that is shown when you choose F4 on our system.

```
                        Define M36 Tape and Optical Dev
 ...................................................................
 !                      Select AS/400 Tape and Opt Dev             !
 !                                                                 !
 !  Type option, press Enter.                                      !
 !    1=Select                                                     !
 !                                                                 !
 !                   Read                                          !
 !  Opt  Name        Only  Description                            !
 !  __   TAP01        N    CREATED BY AUTO-CONFIGURATION           !
 !  __   OPT01        Y    CREATED BY AUTO-CONFIGURATION           !
 !                                                                 !
 !                                                                 !
 !                                                                 !
 !                                                                 !
 !  F11=Display name only   F12=Cancel                  Bottom     !
 !.................................................................!

 F3=Exit   F4=Prompt   F5=Refresh   F10=Set defaults   F12=Cancel
```

Figure 21. Define M36 Tape and Optical Devices - Selecting a Device

OPT01 is the CD-ROM drive device description name assigned on our system by OS/400. **TAP01** is the tape device description assigned by OS/400 and is a 1/4-inch 6380 tape cartridge drive. By entering a 1=Select to the left of the device name, the device name is assigned to the *M36 Tape Device Name* (T1, T2, or TC), **depending on the cursor position on the Define M36 Tape and Optical Dev display (Figure 20) when you pressed F4=Prompt**.

Figure 22 on page 46 shows the results after we used F4=Prompt two times.

```
                        Define M36 Tape and Optical Dev

M36 configuration  . :   SSP1C
  Library  . . . . . :     SSP1

Type values, press Enter.

 M36       AS/400 Tape
 Tape      or Optical
Device       Device
  T1       OPT01___
  T2       ________
  TC       TAP01___



F3=Exit   F4=Prompt   F5=Refresh   F10=Set defaults   F12=Cancel
```

Figure 22. Define M36 Tape and Optical Devices - Devices Selected

Whenever using F4=Prompt or manually entering your device name, always use F19=Validate configuration on the Create M36 Configuration display as shown in Figure 5 on page 31.

If you had used F10=Set defaults, CRTM36CFG automatically assigns an AS/400 device name to the ″appropriate″ *M36 Tape Device*. F10 does not assign the CD-ROM drive because it is ″read only.″ If you map the CD-ROM drive as we have done, you are responsible for not trying to write to the device.

The CD-ROM device is not normally assigned as a T1, T2, or TC device as it is intended only for software and PTF installation.

5. Create SSP Machine Configuration Object, menu option 5.

   OS/400 auto configures diskette devices as DKTnn.

   Figure 23 shows the results of using F4=Prompt after selecting option 5 (**Define M36 diskette devices**) on the Create M36 Configuration menu shown in Figure 5 on page 31. *DKT01* is the diskette drive device description name assigned by OS/400 on our system.

```
                              Define M36 Diskette Devices

M36 configuration  . :   SSP1C
  Library  . . . . . :     SSP1

Type values, press Enter.

   Type values, press Enter.

     M36        AS/400
   Diskette     Diskette
    Device      Device
      I1        DKT01____




F3=Exit   F4=Prompt   F5=Refresh   F10=Set defaults   F12=Cancel
```

Figure 23. Define M36 SSP Diskette Devices

You can use the F10=Set defaults or F4=Prompt functions to assist you in assigning a diskette device to I1.

6. Create SSP Machine Configuration Object, menu option 6.

   The following describes the **Define M36 communication lines** option.

   Define M36 communication lines works slightly different from defining devices. You may use function keys F4=Prompt and F10=Set defaults similar to how you use them for tape, optical, and diskette devices. However, instead of showing an OS/400 line description name, F4 and F10 show the AS/400 **resource name** for a communication port.

   This resource name represents the physical AS/400 Advanced 36 port that a communications cable may be connected to.

   The type of communications, such as Asynchronous protocol, SDLC protocol, X.25, Token-Ring LAN or Ethernet LAN, and so on supported at that port is dependent on the I/O Processor (IOP) hardware feature installed. For example, IOP 2619 supports only Token-Ring LAN, IOP 2617 supports only Ethernet LAN, IOP 2623 (6-line communications controller) does not support LAN protocols, but does support (based on OS/400 line description parameters) SDLC, X.25, Asynchronous, BSC, or ISDN. When SSP uses the communication line for SDLC, Asynchronous, X.25, BSC, or Token-Ring LAN, SSP configuration parameters, including SETCOMM and ALTERCOMM, create the appropriate OS/400 communication line description. This is further explained in the following description of communication line support. Figure 24 shows the results of selecting option 6 and then using F10=Set defaults.

```
                         Define M36 Communication Lines

M36 configuration  . :   SSP1C
  Library  . . . . . :     SSP1

Type values, press Enter.

       M36             AS/400
  Communication     Communication
      Line            Resource
        1           CMN01______
        2           CMN02______
        3           CMN03______
        4           CMN04______
        5           __________
        6           __________
        7           __________
        8           __________
        9           __________
       10           CMN05______


F3=Exit   F4=Prompt   F5=Refresh   F10=Set defaults   F12=Cancel
```

Figure 24. Define M36 SSP Communication Lines, Set Defaults

In Figure 24, **CMN01, CMN02, CMN03, and CMN04 are AS/400 communication port resource names for non-LAN ports (sometimes referred to as WAN (Wide Area Network) ports. The CMN05 resource name represents our token-ring LAN port**. The resource names are assigned by the AS/400 microcode when it detects the IOP and any IOP feature codes that were either shipped with the system or installed by the IBM customer engineer.

You still must use CNFIGSSP to configure this line as you did on heritage System/36s. For example, SSP lines 9 and 10 are restricted as the LAN lines supported by a single SSP machine. Lines 1-8 cannot be a LAN line.

Refer to 3.1.2.1, “Communications Not Supported by SSP” on page 50 for additional information on using OS/400 communications capabilities not directly supported by SSP.

Figure 25 shows the results of selecting option 6 and then using F4=Prompt with the cursor position placed at the ″AS/400 Communication Resource″ input field to the right ″M36 Communication Line″ for line 9. We selected resource name CMN05 from the list of LAN resource names on our system.

```
                          Define M36 Communication Lines

M36 configuration  . :   SSP1C
  Library  . . . . . :     SSP1

Type values, press Enter.

       M36             AS/400
  Communication     Communication
      Line            Resource
        1           __________
        2           __________
        3           __________
        4           __________
        5           __________
        6           __________
        7           __________
        8           __________
        9           __________
       10           CMN05______


F3=Exit   F4=Prompt   F5=Refresh   F10=Set defaults   F12=Cancel
```

Figure 25. Define M36 SSP Communication Lines

Similar to the tape, optical, and diskette device options, F4=Prompt is sensitive to the display cursor position at the time you use F4=Prompt. For example, if your cursor is positioned on an input field for *M36 Communication Line* lines 1 through 8, the AS/400 resource name list shows Advanced 36 communication lines (such as for Asynchronous, Binary Synchronous, SDLC, or X.25 protocols) installed on your AS/400 Advanced 36, but not a LAN line if it is installed. If your cursor was positioned at M36 Communication Line 9 or 10, you see a list of LAN lines but none of the other communication lines if they are installed.

For SSP machine communication lines, you still use standard SSP configuration menus, the VARY Control Command, the ENABLE subsystem procedure, and so on to control operation under SSP. Note that on the AS/400 Advanced 36 token-ring LAN line speed may be set by SSP CHGSYSVL LINESP, line number, and line speed. Supported line speed values are 4 (4-mega**bits**) or 16 (16-mega**bits**). You can view the current line speed with SSP DSPSYSVL.

When an SSP machine is started (IPLed), it detects the configuration information in the applied SSP machine configuration object. In addition to setting up its own SSP internal work areas and control blocks, SSP creates a corresponding OS/400 communication line and attached control unit descriptions according to the SSP configuration parameters if these OS/400 objects were not created during a previous STRM36 command for this SSP

machine. The OS/400 line description is created for the first SSP VARY on or SSP ENABLE to the corresponding SSP line number.

The following naming conventions are used for these OS/400 communication lines and control unit descriptions created by SSP. Remember that since communication lines and control units may be used by either SSP or OS/400 at different times, there may also be other OS/400 communication line and control unit descriptions defined for the same physical communication hardware port. Only one line description for a specific hardware port address can be varied on (or SSP ENABLED) at a time for the same port. Also, only one control unit description on the same communication line with the same address can be varied on at a time.

a. OS/400 communication line name used and created by SSP:

   The line description name has the following format.

```
Q36iiinpt, where:

iii - This is the 3-character SSP machine ID.  See the description
      in Figure 36 on page 62 for determining SSP machine ID.

n   - SSP line number (1-A, where A is line 10)

p   - SSP protocol (S,B,T,X,A)
      S=SDLC   B=BSC   T=Token-Ring LAN   X=X.25   A=Asych

t   - line type (N,S,M)
      N=Non-switched    S=Switched    M=Multipoint
```

b. OS/400 communication controller name used and created by SSP:

   The controller description name has the following format.

```
Q36iiintaa, where:

iii - This is the 3-character SSP machine ID.  See the description
      in Figure 36 on page 62 for determining SSP machine ID.

n   - SSP line number (1-A, where A is line 10)

t   - type of controller (A,R,N)
      A=APPC, used for APPC and SSP Peer.
      R=RWS, used for Remote Work Station, Finance, and PC Support
      N=NETWORK, used for X.25.

aa  - 2 hexadecimal character station address for uniqueness (00-FF)
```

If SSP CHGSYSVL LINESP changes the line speed after one of the ″SSP line descriptions″ has been created, that new line speed is used the next time the line is ENABLEd under the SSP machine. The OS/400 line description line speed value is also changed at that time.

You can view the OS/400 status of these and other line and controller descriptions by using the OS/400 Work with Configuration Status command WRKCFGSTS *LIN *ALL or WRKCFGSTS *LIN line-name for lines, or WRKCFGSTS *CTL *ALL or WRKCFGSTS *CTL controller-name for controllers.

3.1.2.1 Communications Not Supported by SSP

The AS/400 Advanced 36 supports higher speeds for the same protocols supported by heritage System/36s and OS/400 supports line protocols that are not supported by SSP.

For example, SSP supports SDLC line speeds up to 64 Kbps and connection to a 4 Mbps token-ring LAN. OS/400 supports SDLC line speeds up to 2048 Kbps (2 megabits) and a Token-Ring LAN line speed up to 16000 Kbps (16 megabits). For SDLC, all you need are the proper modems to provide the desired speed.

There has been no formal testing to ensure that a single SSP job can take full advantage of line speeds faster than speeds supported by heritage System/36s. However, the AS/400 Advanced 36 performance should exceed what is capable on a heritage System/36.

This ″same protocol but higher speeds″ occurs transparently to SSP, except for token-ring LAN. To set a LAN speed you use CHGSYSVL LINSP, line-number, and line-speed. This is because the LAN adapter must ″tell the LAN″ what its line-speed capability is.

For line types or protocols supported by OS/400 but not SSP, you need to complete three sets of work to enable the application to run on SSP:

1. Create and vary on OS/400 communication object descriptions and corresponding configuration parameters on the remote system or PC.

   For OS/400, you must create an OS/400 line description with parameters to support the line protocol and create one controller description for each ″remote system″ (actual operating system, such as another OS/400 or PC client workstation) that communicates to the AS/400 Advanced 36. Specify the attached line description name in the controller description to identify which line the controller is on.

   Line types and protocols supported by OS/400, but not SSP include:

   - Frame Relay Lines (line speeds up to 1997 Kbps = 2 Mbps)
   - IDLC lines (line speeds 56 Kbps, 64 Kbps)

     IDLC is the line type that supports Integrated Services Digital Network (ISDN) Data Link Control (IDLC).
   - Ethernet (line speeds up to 16 Mbps)
   - Wireless (line speeds up to 4 Mbps)

     Wireless uses a radio transmitter. Its usage requires an analysis to determine if the physical environment of the system and ″communicating devices″ is satisfactory for wireless communications.
   - DDI (line speeds up to 16 Mbps)

     DDI includes Distributed Data Interface and Fiber Distributed Data Interface (FDDI) support.

   The following example shows a Create Ethernet Line description command:

   ```
   CRTLINETH LIND(ITSCETH) RSRCNAME(LIN06) ADPTADR(420000000000) +
             EXCHID(05600000) AUTOCRTCTL(*NO) +
             TEXT('ITSC ETH LINE')
   ```

   The following example shows a Create APPC controller to be used on an Ethernet line:

```
CRTCTLAPPC CTLD(P7089171) LINKTYPE(*LAN) SWTLINLST(ITSCETH) +
           RMTNETID(ITSCNET) RMTCPNAME(P7089171) +
           ADPTADR(420000000042) AUTOCRTDEV(*ALL) +
           TEXT('APPC CTL FOR P7089171')
```

Refer to Chapter 10, “Client Access/400 for DOS Ext to M36 through OS/400 on Ethernet” on page 201 for an example of an Ethernet connection to OS/400.

2. Define and activate the ILAN between OS/400 and SSP.

   The ILAN is the ″Internal Local Area Network″ uniquely available for SSP and OS/400 intercommunications within the same physical AS/400 Advanced 36. The ILAN is partially created and shipped with the AS/400 Advanced 36 and enables ″remote communication″ capabilities that are identical to those capabilities between SSP and OS/400 that are on two separate systems.

   Chapter 4, “Internal Local Area Network” on page 75 provides a complete example of an ILAN configuration that supports up to three SSP machines and OS/400.

3. Define and activate APPN on OS/400.

   OS/400 can be configured to provide intermediate node routing for APPC-based conversations between jobs on an SSP and OS/400 or between two SSPs.

   In our situation, we want an application function request to come into the AS/400 system and be routed to an SSP. With proper configuration parameter values set on OS/400 and the remote system/PC client workstation, this should occur as the data exchange between the remote system/client workstation and SSP application traverses the ILAN and the actual LAN or remote communication line as shown in the following figure:

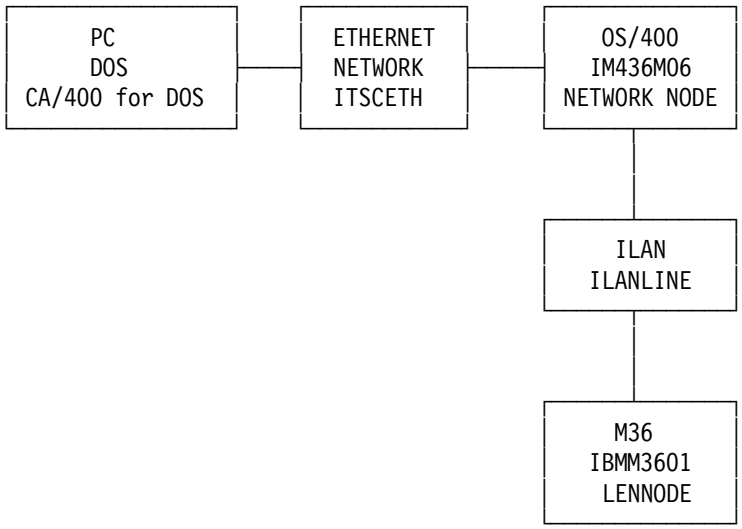


Figure 26. Ethernet and APPN Routing Example

The following topics in this redbook provide configuration examples of APPN routing. One of these provides an example of Ethernet configuration on both the AS/400 Advanced 36 and a client PC workstation on the Ethernet LAN.

- Chapter 10, “Client Access/400 for DOS Ext to M36 through OS/400 on Ethernet” on page 201
- Chapter 12, “Client Access/400 for OS/2 to M36 through OS/400 on Token-Ring” on page 231
- Chapter 13, “Client Access/400 for OS/2 to OS/400 through M36 on Token-Ring” on page 245

3.1.2.2 Sharing Devices Among SSPs and OS/400

This topic discusses all device types supported by SSP.

When OS/400 is operating and an SSP machine is started, the SSP is able to use any display, printer, diskette, tape device, or communication line only if:

- They are defined in the applied SSP machine configuration object and the line or device is **not already in use by OS/400 or another started SSP machine**.
- The line or device is not defined in the applied SSP machine configuration object but the SSP user issues the SSP CHGSYSVL procedure and the DEVMAP parameter specifies a diskette device id (I1), a tape device id (T1, T2, TC), a communication line (1 through 8), or a LAN communication line (9-10) and the line or device is **not already in use by OS/400 or another started SSP machine**.

  Display and printer devices are not supported on CHGSYSVL.

Printer, tape, optical, diskette devices, and communication lines are ″serially reusable″ between SSP and OS/400. The following topics provide detail for each device type.

Display device sharing: The OS/400 console device cannot be shared. Display devices defined in the applied SSP machine configuration object as ″Y″ under the CRTM36CFG heading ″Display M36 Signon at IPL″ are said to be *assigned* to a started SSP machine. At the end of SSP IPL, these display devices are allocated to the SSP machine if they are not already signed on to an OS/400 job. If the OS/400 Signon display was on a device when the SSP machine is started, the SSP Signon display appears. If an OS/400 job was active with the assigned device and the OS/400 user then signs off, the device is assigned to the SSP machine and remains assigned to SSP until SSP is powered down.

The SSP user can use PASSTHRU to pass-through to OS/400 or another SSP. The SSP user can also use the // RUN400 OCL statement. // RUN400 is discussed later in this chapter. Display Station Pass-Through for either SSP or OS/400 is discussed in Chapter 15, “Display Station Pass-Through” on page 273.

For mapped display devices that are not assigned (Display M36 Signon at IPL - N), the OS/400 user can get to SSP through one of several ways. An OS/400 signed on user can use an OS/400 command Transfer to AS/400 Advanced 36 (TFRM36) or Start Display Station Pass-Through (STRPASTHR) to sign on to an SSP machine. An OS/400 job can also run an SSP machine function by using the Start AS/400 Advanced 36 Procedure (STRM36PRC) command.

OS/400 TFRM36, STRM36PRC, and SSP // RUN400 are discussed later in this chapter.

OS/400 display devices not mapped in an applied SSP machine configuration object function similar to Display M36 Signon at IPL - N, except there is no corresponding SSP logical workstation ID identified for the corresponding port and address. This means there is no SSP auto configuration as is possible with controller mapping.

See 3.2.1.1, “Transferring from a Mapped Workstation” on page 66 and 3.2.1.2, “Transferring from an Unmapped Workstation” on page 66 for more details. when using the OS/400 TFRM36 command.

OS/400 commands Work with Object Lock (WRKOBJLCK) and Work with Configuration Status (WRKCFGSTS) can be used to assist in determining whether an SSP job or OS/400 job is currently using a device.

For a **mapped and assigned** display device, the following WRKOBJLCK (WRKOBJLCK OBJ(DSP02) OBJTYPE(*DEVD)) example is shown:

```
                              Work with Object Locks
                                                                 System:   IM436M05
 Object:   DSP02          Library:   QSYS           Type:   *DEVD

 Type options, press Enter.
   4=End job   5=Work with job   8=Work with job locks

 Opt      Job            User           Lock        Status
 _        QINTER         QSYS           *EXCLRD      REQ
 _        QM36000        POWER          *EXCLRD      HELD


                                                                          Bottom
 F3=Exit   F5=Refresh   F12=Cancel
```

Figure 27. OS/400 Work with Object Locks for DSP02

Job name QINTER is the OS/400 subsystem monitor the display device DSP02 belongs to **before** an SSP machine is started that has DSP02 assigned.

Job name QM36000 is the OS/400 Advanced 36 server job that represents SSP machine SSP1 used in our examples. While SSP1 machine is started, the display device remains **held** by SSP1. The QINTER subsystem monitor job has a **REQuested** lock on DSP02. When SSP1 machine is ended, DSP01 returns to QINTER and the OS/400 sign on screen appears as the requested lock is completed.

See 3.1.3, “Start the SSP Machine Example” on page 60 for more information on the Advanced 36 server jobs.

For a **mapped and assigned** display device, the following WRKCFGSTS (WRKCFGSTS CFGTYPE(*DEV) CFGD(DSP02)) example is shown:

```
                        Work with Configuration Status                IM436M06
                                                              06/10/96  12:50:35
Position to  . . . . .  __________   Starting characters __________
Type options, press Enter.
  1=Vary on   2=Vary off   5=Work with job   8=Work with description
  9=Display mode status ...

Opt  Description       Status                -------------Job--------------
__ CTL01             ACTIVE
__   DSP02           ACTIVE                QM36000     POWER       00261

                                                                      Bottom


Parameters or command
===> ____________________________________________________________
F3=Exit   F4=Prompt   F12=Cancel   F23=More options   F24=More keys
```

Figure 28. OS/400 Work with Configuration Status for Display Device

CTL01 is the local workstation controller 1 that has display device DSP02 attached. Job **QM36000** is the Advanced 36 server job that has DSP02 assigned to it.

Print device sharing: Table 2 shows an example of printer device sharing, depending on the CNFIGSSP definition of the printer device and the OS/400 SSP machine configuration object applied to the started SSP machine.

Table 2. OS/400, SSP Printer Sharing Based on CRTM36CFG and CNFIGSSP

SSP Logical Id	OS/400 Device Name	CRTM36CFG Spooling Attribute	SSP Spool On/Off	Result
P1	PRT01	*S36	On	Output sent to SSP spooled file, printed on PRT01 by SSP spooled writer.
P2	PRT06	*S36	Off	Output sent directly to PRT06.
P3	PRT11	*DEV	On/Off	Output sent to OS/400 output queue PRT11 in library QUSRSYS.
P4	PRT12	USRLIB/USRQ	On/Off	Output sent to OS/400 output queue USRQ in library USRLIB.
P5	*OUTQ	QGPL/QPRINT	On/Off	Output sent to OS/400 default output queue QPRINT in library QGPL.
P6	*OUTQ	USRLIB/USRQ	On/Off	Output sent to OS/400 output queue USRQ in library USRLIB.

Note:

When SSP output is sent directly to an OS/400 output queue, all SSP print characteristics (such as lines per inch, characters per inch, and forms number) are preserved.

You may also use the SSP PRINTER OCL statement to direct SSP output to an OS/400 output queue. This overrides the printer attributes in the SSP machine configuration object.

For devices PRT01 and PRT02 specified in Table 2, an SSP machine job can print on these devices if they are not already in use by another SSP machine or OS/400. Once an SSP machine or OS/400 job finishes using the printer, a job in another SSP or OS/400 can print on that same device.

See “Tape, Optical, Diskette Device Sharing” on page 55 for examples of OS/400 commands and SSP control commands to display the status of a device, which could include a printer device. These commands show whether a job is using a device.

Tape, Optical, Diskette Device Sharing: When an SSP machine user job attempts to use a tape, optical, or diskette device, that device is used by the job if no other SSP machine or OS/400 job is using the device. If the device (including a printer device) is not being used by an OS/400 job, and its status is *varied off* or *varied on*, SSP will vary the device off if it is in varied on status and acquire it for the SSP job attempting to use the device. When the SSP job using the device ends or the job issues the DEALLOCATE OCL statement to release the device, the device is returned to OS/400 with the OS/400 status at the time it was acquired by SSP. This means, if the device was in varied on status, the device is returned to a varied on status.

If a job in another SSP machine or OS/400 is using the device, the attempt to use the device from the ″requesting″ SSP machine results with a ″device not available″ message.

If you suspect an OS/400 job has the device, you must run the OS/400 Work with Object Locks (WRKOBJLCK) command and specify the OS/400 device name. WRKOBJLCK shows the OS/400 job name using the device.

An example of WRKOBJLCK for tape device TAP01 is:

```
WRKOBJLCK OBJ(TAP01) OBJTYPE(*DEVD)
```

WRKOBJLCK shows a job name and a lock status if the device is owned by an OS/400 user job as shown in the following display:

```
                              Work with Object Locks
                                                                 System:   IM436M05
Object:   TAP01          Library:   QSYS           Type:   *DEVD
Type options, press Enter.
  4=End job   5=Work with job   8=Work with job locks
Opt     Job            User           Lock        Status
__      COOLPC         COOL           *EXCLRD      HELD
                                      *EXCLRD      HELD



                                                                          Bottom
F3=Exit   F5=Refresh   F12=Cancel
```

Figure 29. OS/400 Work with Object Locks for TAP01

For the TAP01 device, this shows the device is currently in use by job COOLPC running under user profile COOL. The lock type of *EXCLRD means SSP cannot use the device. If the job name QM36nnn were listed, this indicates the associated SSP Machine owns the device and users within that SSP machine can use TAP01. See the description in Figure 35 on page 61 for more information on the QM36nnn job.

If there were no locks on TAP01, you see the following message on the Work with Object Locks display:

```
(There are no locks for the specified object.)
```

Examples of WRKCFGSTS for tape device TAP01 are:

```
WRKCFGSTS CFGTYPE(*DEV) CFGD(TAP01)<---  Shows only device TAP01

              or

WRKCFGSTS CFGTYPE(*DEV) CFGD(TAP* ) <--- Shows all devices whose name
                                         begins with TAP
```

```
                         Work with Configuration Status                IM436M06
                                                              06/10/96  12:50:35
 Position to  . . . . .  __________   Starting characters __________
 Type options, press Enter.
   1=Vary on   2=Vary off   5=Work with job   8=Work with description
   9=Display mode status ...

 Opt  Description       Status                -------------Job--------------
 __   TAP01             VARIED ON
                                                                     Bottom




 Parameters or command
 ===> ______________________________________________________________________
 F3=Exit   F4=Prompt   F12=Cancel   F23=More options   F24=More keys
```

Figure 30. OS/400 Work with Configuration Status for Tape Device

TAP01 is in *varied on* status which indicates it is available for use by any OS/400 job or by an SSP machine.

If TAP01 were in use by an SSP machine, its OS/400 status would be *varied off*. If you tried to vary on, the vary on would fail. WRKOBJLCK for TAP01 shows the associated SSP machine's OS/400 job QM36nnn has a lock on TAP01, but WRKCFGSTS for TAP01 would not show job QM36nnnn as using the device.

This *varied off with lock on the device by a QM36nnn job* example works the same for printer, tape, optical, and diskette devices.

If you are currently running as an SSP job and you suspect OS/400 is using the device, you can use either Display Station Pass-Through (PASSTHRU procedure) or // RUN400 to run one of the OS/400 commands. If you suspect another SSP machine is using the device, you can PASSTHRU to that SSP machine. You may also use the // RUN 400 OCL statement and specify the OS/400 TFRM36 command to transfer to another SSP machine. PASSTHRU requires the ILAN be configured and active, but TFRM36 issued through the // RUN400 OCL statement does not require ILAN to be active.

Note: There are some interactive versus batch restrictions when using the // RUN400 OCL statement. They are discussed in 3.1.3, “Start the SSP Machine Example” on page 60.

If you are on OS/400 and suspect an SSP is using the device, you can use OS/400 WRKOBJLCK or WRKCFGSTS commands as previously discussed. To find out more details on how SSP is using the device, you may use OS/400 Display Station Pass-through command STRPASTHR or the TFRM36 command to get to the suspected SSP.

Once on the SSP you use the SSP STATUS control command to see device status. However, you need to have a listing of the OS/400 to SSP machine device mapping to interpret what you see on the SSP STATUS control command.

For how to correlate SSP logical workstation display and print device IDs (Wn or Pn) to OS/400 device description names, refer to the **Physical and Logical Workstation Terminology** description that follows Table 1 on page 38. To correlate SSP tape, optical, diskette device logical IDs (T1, T2, TC, I1) with OS/400 device description names and SSP communication line numbers with OS/400 communication port resource names you can do the following:

- Use OS/400 printed output from either the Work with AS/400 Advanced 36 Machine (WRKM36) command for a named SSP machine or the Display AS/400 Advanced 36 Machine (DSPM36) for a named SSP machine.
- Use SSP DSPSYSVL procedure output.

Either WRKM36, DSPM36, or SSP DSPSYSVL shows the mapped SSP logical ID and OS/400 device description name for tape, optical, and diskette devices. These functions do not show the SSP communication line number mapped to an OS/400 communication line description name. They show the OS/400 communication port resource name associated with the SSP line number.

To associate an OS/400 communication line description name to an SSP line number, you must use the OS/400 communication port resource name as the common link. See the description for OS/400 communication line description names created when a corresponding SSP line number is varied on or ENABLEd in Step 6a on page 49.

On OS/400, you can use the Work with Hardware Resources (WRKHDWRSC) command with TYPE(*CMN) to show OS/400 line description names associated with the OS/400 communications port resource name.

Figure 31 shows an example of DSPSYSVL output for our example configuration.

```
                                                        Display Spooled File
File  . . . . . :   $SYSLIST
Control . . . . .
Find  . . . . . .
*...+....1....+....2....+....3....+....4....+....5....+....6....+....7..
 SYSTEM VALUES                    DATE 07/09/96          TIME 11.54
TAHEAD   OFF
DISKWRT  ASYNC
DISKSIZE 200
WORLDTRD OFF
LANGUAGE 10
LINESPD  10       4
MAXSTNS  10       0
DEVMAP   T1       OPT01
DEVMAP   TC       TAP01
DEVMAP   I1       DKT01
DEVMAP   LINE10   CMN05
*****                    END OF SYSTEM VALUES                  *****
```

Figure 31. SSP Display System Value Example

Note: A complete discussion of DSPSYSVL is beyond the scope of this redbook. See *Advanced 36 General Information SSP Operating System*, SC21-8299, for more details.

Figure 32 on page 58 and Figure 33 on page 58 show an example of using WRKHDWRSC TYPE(*CMN) to correlate an OS/400 communication port resource name to an OS/400 communication line description. We use resource name CMN05 in this example.

```
                        Work with Communication Resources
                                                                System:   IM436M06
 Type options, press Enter.
   5=Work with configuration descriptions   7=Display resource detail

 Opt  Resource        Type  Status               Text
  _   CMB01           918B  Operational          Combined function IOP
  _     LIN01         2609  Operational          Comm Adapter
  _       CMN01       2609  Operational          V.24 Port Enhanced
  _       CMN02       2609  Operational          V.24 Port
  _   CC01            2623  Operational          Comm Processor
  _     LIN02         2609  Operational          Comm Adapter
  _       CMN03       2609  Operational          V.24 Port
  _       CMN04       2609  Operational          V.24 Port
  _   CC02            2626  Operational          Comm Processor
  _     LIN03         2626  Operational          LAN Adapter
  5       CMN05       2626  Operational          Token-Ring Port
  _   CC03            2617  Not detected         Combined function IOP
  _     LIN04         2617  Not detected         LAN Adapter
  _       CMN06       2617  Not detected         Ethernet Port
  _     LIN05         605A  Not detected         Virtual Controller
                                                                          More...
F3=Exit   F5=Refresh   F6=Print   F12=Cancel
```

Figure 32. OS/400 WRKHDWRSC for Communication Line Example, 1 of 2

Enter a 5, Work with configuration descriptions, for resource **CMN05** to get the following display.

```
                      Work with Configuration Descriptions
                                                                System:   IM436M06
Resource name  . . . . . . . :   CMN05
Text . . . . . . . . . . . . :   Token-Ring Port

Type options, press Enter.
  1=Create   5=Work with description   8=Work with configuration status

Opt     Description
 _      __________
 _      ITSCTRN




                                                                          Bottom
F3=Exit   F5=Refresh   F6=Print   F12=Cancel
```

Figure 33. OS/400 WRKHDWRSC for Communication Line Example, 2 of 2

In this WRKHDWRSC example, we did not VARY on or ENABLE SSP line 10, so we have no OS/400 line description name automatically created by the SSP machine. In this example, we explicitly created the OS/400 line description named ITSCTRN with the OS/400 Create Line Description (Token-Ring Network) (CRTLINTRN) command. From our LAN attached workstations, we either sign on to OS/400 and then use the OS/400 Display Station Pass-Through (STRPASTHR) command to pass-through to an SSP machine or we use OS/400 APPN support to route LAN attached PC work directly to an SSP machine, using the Internal Local Area Network support in AS/400 Advanced 36 between OS/400 and an SSP machine.

See Chapter 4, “Internal Local Area Network” on page 75 for more ILAN information and APPN information. See Part 4, “ PC Support/36 and Client Access/400” for token-ring, Ethernet, and APPN configuration examples.

Once you understand the device mapping, you can typically do a D W (STATUS Workstation). D W output includes the status for local and remote display and

printer devices, diskette drive, tape drives, Distributed Host Command Facility (DHCF) and Display Station Pass-Through (DSPT) devices, and Printer Pass-Through devices.

If you are currently running an OS/400 job, you cannot run D W (or other SSP *control commands*) through the OS/400 STRM36PRC command, which is described in more detail in 3.1.3, “Start the SSP Machine Example” on page 60. This is because STRM36PRC is intended to run SSP *procedures*, not SSP control commands.

If the device is in use by an SSP machine, any attempt by an OS/400 job to use the device results in a ″device not available″ message.

Communication Line Sharing: A communication line (SSP lines 1-8 and 9-10 (LAN lines)) is ″serially reusable″ at the complete line level. This means all controllers and devices on the line are either not doing anything or they are running only SSP work or only OS/400 work.

For communications lines, a line is considered unavailable to another SSP machine or OS/400 if the current SSP machine has the line *varied on* (for lines with only remote workstations active) or *enabled* if ICF subsystems are active on the line. An OS/400 communication line is considered unavailable to an SSP machine if its status is at least *varied on*, *active*, or *connect pending* for a switched line. If SSP has the line allocated to an SSP job, the OS/400 line status for the line named Q36iiinpt (see Step 6a on page 49) shows as varied on. Any attempt by an OS/400 user to vary off that line description or to vary on another line description defined for the same hardware configuration port fails.

You can use OS/400 command WRKCFGSTS for a named line to determine its status. For example:

```
WRKCFGSTS CFGTYPE(*LIN) CFGD(ITSCTRN)
```

However, in contrast to a print, tape, optical, or diskette device, the OS/400 command WRKOBJLCK OBJ(Q36iinpt) OBJTYPE(*LIND) shows no lock by job QM36nnn. You see the ″There are no locks for the specified object″ message.

There is an exception to the general rule that all communication controllers and devices on a communication line are ″assigned″ to a single SSP machine or OS/400. This exception requires Advanced Peer-to-Peer Networking (APPN) be configured and active on either the SSP machine or OS/400 that ″owns″ the communication line. If APPN is active, an APPC-based session (for example, Client Access/400 client program or a remote system such as another System/36, AS/400 Advanced 36, or AS/400 system) can be routed through:

- SSP machine to another SSP machine or OS/400
- OS/400 to an SSP machine

Chapter 12, “Client Access/400 for OS/2 to M36 through OS/400 on Token-Ring” on page 231 and Chapter 13, “Client Access/400 for OS/2 to OS/400 through M36 on Token-Ring” on page 245 show configuration examples using APPN with Client Access/400 on the client workstation.

For further information on SSP and OS/400 ″sharing″ of these resources, refer to *Advanced 36 Operator Tasks - Multiple Operating Systems*, SC21-8384, and *Advanced 36 General Information for SSP Operating System*, SC21-8299.

3.1.3 Start the SSP Machine Example

After an SSP machine (*M36 object) and an SSP machine configuration object (*M36CFG) have been created under OS/400, an SSP machine can be started (IPLed) using the STRM36 command.

```
                              Start Machine (STRM36)
Type choices, press Enter.
Machine  . . . . . . . . . . . .   SSP1          Name
  Library  . . . . . . . . . . .     SSP1        Name, *LIBL, *CURLIB
IPL type . . . . . . . . . . . .   *M36          Name, *M36, *UNATTEND...
User profile . . . . . . . . . .   POWER         Name, *M36
Apply configuration  . . . . . .   SSP1C         Name, *NONE
  Library  . . . . . . . . . . .     SSP1        Name, *LIBL, *CURLIB



                                                                     Bottom
F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
F24=More keys
```

Figure 34. Start SSP Machine

Figure 34 shows the Start AS/400 Advanced 36 Machine (STRM36) command selecting the SSP machine ″SSP1″ to be started and applies the SSP machine configuration object named ″SSP1C.″ The default for ″Apply configuration″ is *NONE which means that the SSP machine configuration object (*M36CFG) *previously* applied to this SSP machine is used. You must specify a specific *M36CFG object to apply when you want to use a new (as shown here, SSP1C/SSP1) or changed configuration.

The IPL type can be *M36 (use the IPL type specified in the applied SSP machine configuration object (SSP1C)) or override the SSP1C IPL type value by specifying *ATTEND, *UNATTEND, or a specific tape, or CD-ROM device to IPL from.

When this command completes successfully, there are approximately 10 AS/400 Advanced 36 server jobs in OS/400 subsystem QSYSWRK. These QSYSWRK jobs run under user profile POWER when they perform selected functions that are actually performed under OS/400. More details follow in Figure 35.

Note that user profile POWER is a user profile created by the ITSO for this redbook and used in this example instead of the default of QUSER. User profile POWER does not come predefined with OS/400.

To begin running OS/400 work, you can use the IBM-supplied defaults for the SSP machine jobs that run in OS/400 subsystem QSYSWRK. However, as you run more OS/400 applications, you may need to understand OS/400 Work Management to achieve *optimal* performance. This includes prestart jobs, job descriptions, and class descriptions that include run priority, job library lists, and OS/400 security.

Note: You can run all of these functions with a minimal understanding of OS/400 Work Management and achieve very good performance.

A good introduction to these considerations is found in several chapters in the *Advanced 36 Operator Tasks-Multiple Operating Systems*, SC41-8384.

In this redbook, we show an example of the SSP machine jobs running in subsystem QSYSWRK and a brief discussion of how the AS/400 system manages

the SSP work. An example of the OS/400 Work with Subsystem Jobs (WRKSBSJOB) command display is shown in Figure 35 on page 61.

```
                          Work with Subsystem Jobs                    IM436M06
                                                              03/19/96  12:20:50
Subsystem  . . . . . . . . . . :   QSYSWRK
Type options, press Enter.
  2=Change   3=Hold   4=End   5=Work with   6=Release   7=Display message
  8=Work with spooled files   13=Disconnect
Opt  Job         User        Type     -----Status-----  Function

__   QM36000     POWER       M36      ACTIVE            CMD-STRPJ
__   QM36001     POWER       M36      ACTIVE            CMD-STRPJ
__   QM36002     POWER       M36      ACTIVE            CMD-STRPJ
__   QNURHHGH    QUSER       PJ       ACTIVE
__   QNURHHGH    QUSER       PJ       ACTIVE            CMD-ALCOBJ
__   QNURHHGH    QUSER       PJ       ACTIVE            CMD-ALCOBJ
__   QNURHHGH    QUSER       PJ       ACTIVE

        :                    :              :                :

__   QNURHLOW    QUSER       PJ       ACTIVE
__   QNURHLOW    QUSER       PJ       ACTIVE
__   QNURHLOW    QUSER       PJ       ACTIVE
__   QNURHMED    QUSER       PJ       ACTIVE
__   QNURHMED    QUSER       PJ       ACTIVE
__   QNURHMED    QUSER       PJ       ACTIVE


                                                                      More...
Parameters or command
===>
F3=Exit   F4=Prompt   F5=Refresh   F9=Retrieve   F11=Display schedule data
F12=Cancel
```

Figure 35. OS/400 WRKSBSJOB Example-Active SSP Machines

In this QSYSWRK subsystem example, three SSP machines (represented by jobs QM36000, QM36001, and QM36002) have been started (IPLed) and assigned the OS/400 function ″CMD-STRPJ″ (start a pre-started job). A QM36nnn job is referred to as an **AS/400 Advanced 36 server job**. There is one QM36nnn job for each started SSP machine. The QNURHHGH, QNURHLOW, and QNURHMED jobs are also AS/400 Advanced 36 server jobs. These QNURHccc jobs do work for any started QM36nnn job as described later in this topic.

Each created SSP machine (*M36 object) is automatically assigned a 3-character ″ID″. In Figure 35, nnn values ″000″, ″001″, and ″002″ are appended to the ″QM36″ prefix when the SSP machine is started. In our example, ID 000 was assigned to SSP1, 001 was assigned to SSP2 and 002 was assigned to SSP3.

You can determine the assigned SSP machine ID by using the Work with AS/400 Advanced 36 Machines (WRKM36) command menu, ″Display M36 Attributes″ option. An example for SSP machine SSP1 is shown in Figure 36 on page 62:

```
                          Display M36 Attributes

Machine  . . . . . . :   SSP1
  Library  . . . . . :     SSP1

M36 status . . . . . . . . . . . . . :   Started   2
M36 SRC code . . . . . . . . . . . . :   00000000
M36 Id . . . . . . . . . . . . . . . :   000   1
M36 fixed disk size  . . . . . . . . :    200
M36 auto-signon  . . . . . . . . . . :   *ENABLE
M36 applied configuration  . . . . . :   SSP1C
  Library  . . . . . . . . . . . . . :     SSP1
M36 server job . . . . . . . . . . . :   QM36000   3
  User . . . . . . . . . . . . . . . :     POWER
  Number . . . . . . . . . . . . . . :     002255
IPL type . . . . . . . . . . . . . . :   *UNATTEND
User profile . . . . . . . . . . . . :   POWER
Text description . . . . . . . . . . :   SSP Machine 1


Press Enter to continue.
                                                                Bottom
 F3=Exit   F12=Cancel
```

Figure 36. SSP Machine ID: SSP1 Example

At **1**, you can see that ID ″000″ was assigned to SSP machine SSP1. At **2**, you can see that SSP1 is started. Job name 002255/POWER/QM36**000**, shown at **3**, is shown if the SSP machine is currently started or if the SSP machine had been ended and not started again.

A QM36nnn job runs under the OS/400 user profile specified through:

- The SSP machine configuration object applied to the SSP machine through the most recent STRM36 command (STRM36... USRPRF(*M36)) or applied on a previous STRM36 command.
- The user profile specified through the STRM36 command (STRM36... USRPRF(user-profile)):

  This overrides the USRPRF(*M36) default.

Functions performed by a QM36nnn server job include:

- Allocation of communication lines and devices between SSP and OS/400
- SSP DSPSYSVL and CHGSYSVL functions
- SSP POWER OFF
- Initial processing of SSP requests and forwarding work to the QNURHccc jobs. QM36nnn routes ″long-running functions″ to the QNURHccc jobs.

Note that in this example, the QM36nnn jobs run under OS/400 user profile POWER since POWER was specified on the STRM36 command ″user profile″ parameter.

The QNURHccc jobs are initially started as OS/400 *prestart jobs*. This means they are started and waiting for work before the first request for work is received. The QNURHccc jobs are started by the first STRM36 command when no other SSP machine is active. They are used to perform ″server″ functions″ for **all started SSP machines, not just the STRM36 command that caused them to be started.** The ccc characters correspond to the SSP priority values of High (HGH), Medium (MED), or Low (LOW). The functions performed by these jobs include:

- Processing the OS/400 command specified on the SSP // RUN400 OCL statement (for a user who did not sign on to OS/400).
- Processing of SSP spooled data directed to an OS/400 spooled output queue (for a user who did not sign on to OS/400).
- Allocating and deallocating devices between SSP and OS/400.

Note that the QNURHccc jobs run under OS/400 user profile QUSER supplied with OS/400. The user profile to run these jobs is specified on the ″prestart job entry″ parameter of the OS/400 subsystem description for QSYSWRK. QSYSWRK subsystem is shipped with OS/400 and is used to run many ″system jobs″ (such as TCP/IP functions) in addition to jobs used to perform some SSP functions. It is important to note that when a QNURHccc job performs work for an associated QM36nnn job, any OS/400 output produced, such as spooled output for an SSP job, shows the user profile specified for the associated QM36nnn job. In this example, this means spooled SSP output shown on an OS/400 spooled output queue shows user profile POWER.

When an OS/400 job has transferred to an SSP job through the TFRM36 command and that SSP job performs a // RUN400 function, that OS/400 function runs under the originating OS/400 user profile (the one that did TFRM36). More information on which OS/400 job and which user profile is used is explained in the next topics in this chapter starting with 3.2, “Running SSP and OS/400 Coexistence Functions” on page 64.

The Work with M36 Machines (WRKM36) command we used to determine the assigned SSP machine ID can also be used for controlling the starting and ending of an SSP machine and examining SSP machine status. Figure 37 shows the WRKM36 command display with one SSP machine *started* (IPLed).

```
                              Work with M36 Machines
Type options, press Enter.
  1=Create   2=Change     4=Delete   5=Display   6=Print   7=Rename
  13=Change description   14=Start   15=End      16=Transfer
Opt  M36         Library     Status        Description
__   SSP1        SSP1        Started   ORIGINAL SSP ID=000
__   SSP2        SSP2        Ended     SECOND SSP ID=001
__   SSP3        SSP3        Ended     THIRD SSP ID=002
                                                                        Bottom
===>
F3=Exit   F4=Prompt      F5=Refresh   F9=Retrieve   F12=Cancel
F16=Repeat position to   F17=Position to
(C) COPYRIGHT IBM CORP. 1980, 1995.
```

Figure 37. OS/400 Work with M36 Machines

Note: After creating SSP machines SSP1, SSP2, and SSP3, we used the ″Display M36 Attributes″ option of the WRKM36 command menu option to determine the SSP machine ID automatically assigned. We then did a CHGM36 command to change the TEXT field for SSP machines SSP1, SSP2, and SSP3 to enter the SSP machine ID value as shown in the *Description* heading in Figure 37. This description data helps us know which SSP machine is represented by the QM36nnn server jobs that run in subsystem QSYSWRK.

Caution on Ending an SSP Machine

We do not recommend ending an SSP machine either through the ″end option″ on WRKM36 or use of the OS/400 End AS/400 Advanced 36 Machine (ENDM36) command. The preferred way is to use the SSP POWER OFF control command from within the SSP machine.

From the SSP command line, enter the following:

1. DISABLE ILANSBS (if ILAN is active)
2. STOP SYSTEM
3. POWER OFF
4. OFF

   Make sure you sign off as well (or the POWER OFF command does not complete).

The SSP machine should end normally.

Ending an SSP machine from OS/400 (outside of SSP) should only be used after attempts to use SSP POWER OFF from within the specified SSP machine have failed. The use of the OS/400 ENDM36 function may cause undesirable results, since the SSP machine is ended immediately and SSP programs that are running are not allowed to perform any cleanup.

3.2 Running SSP and OS/400 Coexistence Functions

There are specific support capabilities that enable an SSP user to run an OS/400 command, an OS/400 user to run an SSP procedure, and to ″pass-through″ from an SSP machine or OS/400 session into a different SSP machine or OS/400:

- OS/400 user issues the Transfer to AS/400 Advanced 36 (TFRM36) command.
- SSP user issues the // RUN400 OCL statement.
- OS/400 user issues the Start M36 Procedure (STRM36PRC) command.
- Other SSP and OS/400 coexistence functions.

The next topics describe these functions with examples.

3.2.1 OS/400 Transfer to AS/400 Advanced 36 (TFRM36) Example

This OS/400 command is valid only from a local twinax or ASCII attached workstation and does not use the Internal Local Area Network connection. It does require the specified SSP machine be active. TFRM36 causes the active OS/400 display device session to be transferred as a workstation to the named SSP until the SSP OFF statement is issued. After the OFF statement completes, the OS/400 user resumes the OS/400 session.

The following is an example of the TFRM36 command:

```
TFRM36 M36(SSP1/SSP1) WSID(*DFT) AUTOSIGNON(*YES) MENU(*M36USRPRF)
LIB(*M36USRPRF) PRC(*M36USRPRF) IGC(*YES)
```

In this example, the command default values are shown for all parameters except **M36**, which identifies the active SSP machine the OS/400 workstation

operator wants to run under (transfer to). In this example, this is SSP1 stored in library SSP1.

WSID specifies whether a default (*DFT) SSP logical workstation ID (Wn) should be used or a *specific SSP Wn ID* should be used. You need to review the CNFIGSSP definitions for display device assignment and the display device definitions in the SSP machine configuration object applied to a started SSP machine. For example, assume you are on OS/400 physical workstation device DSP02 that is mapped under SSP machine configuration object SSP1C (which we have applied to SSP machine SSP1). *DFT causes the SSP machine to use W3 for DSP02 as we have listed in Table 1 on page 38. Alternatively, you could have specified WSID(W5). If W5 were available according to the SSP1 master configuration record, W5 would be assigned to the ″transferred in″ SSP workstation.

For more information on SSP logical workstation selection for TFRM36, refer to 3.2.1.1, “Transferring from a Mapped Workstation” on page 66 and 3.2.1.2, “Transferring from an Unmapped Workstation” on page 66.

AUTOSIGNON *YES specifies that OS/400 user is automatically signed onto the SSP provided the OS/400 and active SSP machine have the same user profile/ID defined. For automatic signon, the associated SSP machine *M36 object must also have specified AUTOSIGNON(*ENABLE) through either the CRTM36 or CHGM36 command.

AUTOSIGNON(*NO) shows the SSP Signon display and requires the SSP USERID and password to be entered before proceeding. With this option, you can run on SSP with a USERID different than the OS/400 user profile.

The parameters **MNU**, **LIB**, and **PRC** apply only for AUTOSIGNON(*YES) and select the SSP session′s initial menu, library, and procedure to run before displaying the initial SSP menu. *M36USRPRF means the menu, library, and procedure defined for the SSP USERID (profile) is used.

IGC (IdeoGraphic Character) is valid only if AUTOSIGNON(*YES) is specified on the TFRM36 command.

IGC indicates whether the SSP session uses IdeoGraphic Characters (Double-Byte Character Set (DBCS) character input and output). IGC support is valid only if the SSP is double-byte enabled and the specific physical display device is double-byte capable.

The TFRM36 command works similar to Display Station Pass-Through support between SSP and OS/400, except as discussed later under 3.2.1.1, “Transferring from a Mapped Workstation” on page 66, 3.2.1.2, “Transferring from an Unmapped Workstation” on page 66, and 3.2.2, “SSP User // RUN400 OCL Statement Examples” on page 67.

Note: An enhancement is planned to remove the ″locally attached device only″ restriction. You must watch for this new support in future AS/400 announcements.

3.2.1.1 Transferring from a Mapped Workstation

If you transfer from a mapped display station (listed on the CRTM36CFG ″Dfn M36 Display and Printer Dev″ display), the following SSP processing occurs:

- If you specify WSID(*DFT) on TFRM36, the workstation transfers to the SSP logical workstation whose port and address in the SSP machine′s master configuration record are the **same as the port and address (OS/400 switch setting) to which the physical display station is mapped**. For example, if the transfer is initiated from OS/400 device DSP10, this is mapped to SSP W2 through port 0 address 2 as defined in our example as shown in Table 1 on page 38.

  If the logical workstation (W2 in this example) is not available (for example, it is varied off under SSP or in use by another physical display device (OS/400 DSPnn)), an error message is displayed.

- If you specify WSID(Wn) on TFRM36, the workstation transfers to that SSP logical workstation (Wn) if it is available. This logical workstation ID must have been successfully auto configured by SSP or manually created through CNFIGSSP. If the logical workstation is not available (for example, it is varied off under SSP or in use by another physical display device (OS/400 DSPnn)), an error message is displayed.

Caution on Nested TFRM36 WSID(*DFT) or STRM36PRC Commands

It is possible to issue TFRM36 WSID(*DFT) and while running in an SSP machine, issue the // RUN400 OCL statement to run under OS/400. The first TFRM36 function is still active. If you then issue another (nested) TFRM36 command with WSID(*DFT), you are not able to transfer back into the same SSP machine. This is because your SSP logical workstation ID is still in use from the initial TFRM36 WSID(*DFT).

You can either exit from the OS/400 session resulting from using // RUN400 or you can use TFRM36 WSID(Wn) to a specific SSP logical workstation id not already in use. You can then do the SSP function you want to.

Use of // RUN400 and TFRM36 WSID(Wn) can perform nested transfers to SSP until you run out of SSP logical workstation IDs that are available.

Use of STRM36PRC WSID(*DFT) or WSID(Wn) can be used the same way as described here for TFRM36 WSID(*DFT) or WSID(Wn).

We recommend not doing this nesting of transfers to an SSP machine, but it may be necessary as you ″migrate″ portions of an SSP application to run as an OS/400 application.

3.2.1.2 Transferring from an Unmapped Workstation

If you transfer from an unmapped display station (not listed on the CRTM36CFG ″Dfn M36 Display and Printer Dev″ display), the following SSP processing occurs:

- If you specify WSID(*DFT) on TFRM36, a logical workstation is selected from a list of display stations that are defined in the SSP machine′s master configuration record at ports and addresses to which no physical workstation (OS/400 DSPnn) is mapped. From that list, the logical workstation (SSP Wn) whose attributes most closely match the attributes of the physical workstation doing the transfer is selected. If that logical workstation is already in use, SSP uses another logical workstation from the list if one is

available. The transfer fails with an error message if no logical workstation is available.

An example of this is using OS/400 physical workstation DSP07, which we did not map in SSP machine configuration object SSP1C as shown in Figure 12 on page 36 and Figure 13 on page 37.

- If you specify WSID(Wn) on TFRM36, the workstation transfers to that SSP logical workstation (Wn) if it is available. This logical workstation ID must have been successfully auto configured by SSP or manually created through CNFIGSSP. If the logical workstation is not available (for example, it is varied off under SSP or in use by another physical display device (OS/400 DSPnn)), an error message is displayed.

If a single physical workstation runs an application that transfers to SSP and when in SSP does a // RUN400 to run an OS/400 command and once on the OS/400 does another TFRM36, a different logical workstation must be selected on each TFRM36. If the nesting of transfers to an SSP machine is done frequently, you may run out of SSP logical workstations needed to complete the application. It is the customer's responsibility to determine the number of SSP logical workstation IDs that need to be pre-created under SSP.

3.2.2 SSP User // RUN400 OCL Statement Examples

// RUN400 does not use the Internal Local Area Network configuration. The // RUN400 CMD-'OS/400 command' runs the OS/400 command under the OS/400 user profile specified through the CRTM36 command menu or the user profile specified on the STRM36 command, or **under the OS/400 user profile that issued the TFRM36 or STRM36PRC command from a display device under control of OS/400.**

For example, assume a LAN-based PC running 5250 emulation is signed on to OS/400 as user COOL and issues STRPASTHR IBMM36nnn. This user signs on to SSP as user JCOOL. If that SSP job does a // RUN400 command function, the OS/400 command runs on the OS/400 under the OS/400 user profile applied to the started SSP machine. In our QSYSWRK example, this is user profile POWER.

However, now assume an OS/400 workstation user signed on to a local twinax or ASCII display device as COOL does TFRM36 M36(SSP1/SSP1) AUTOSIGNON(*NO). The user signs on to SSP as user JCOOL. If that SSP job does a // RUN400 command function, the OS/400 command runs on the OS/400 under the OS/400 user profile COOL.

It is the customer's responsibility to define appropriate OS/400 authority to the SSP machine user profile or the job's user profile. For example, you normally do not want the SSP user to be authorized to the OS/400 Power Down System (PWRDWNSYS) command.

Also, depending on how a display device runs under an SSP machine, the OS/400 command is run interactively or as if it were submitted as an OS/400 batch job. If a display device **assigned** to the SSP machine (SSP machine configuration object Def M36 Dsp and Prt Dev Attr, Display M36 Signon at IPL-Y) issues the // RUN400 OCL statement, the OS/400 command runs as a batch function under OS/400, not as an interactive function. This non-interactive (batch) job runs under the SSP machine user profile.

While the OS/400 command is running through the // RUN400 OCL statement issued from an SSP machine session, you see a message similar to one of the following:

```
     CMD running in job 001318/QUSER/QNURHMED        12:03:03
 or
     CMD running in job 003358/COOL/DSP10             14:03:03
```

This is the OS/400 job name under which the OS/400 command is actually performed. Whether you see ″NURHccc″ or ″workstation name″ (for example, DSP10) as part of the job name depends on whether the OS/400 command is run interactively (job DSP10) or in batch (job QNURHMED). A workstation **assigned** to an SSP machine that issues the // RUN 400 statement has its OS/400 command performed by a job such as 001318/QUSER/QNURHMED.

If // RUN400 is issued within an SSP job, the job can use the ?CD? procedure control expression to determine if the OS/400 command was successful or if an error occurred.

3.2.2.1 OS/400 Command Through // RUN400 Considerations

The successful results of running the OS/400 command depends on how the SSP job was started, the OS/400 command capabilities, and the authority required to run the command. Sometimes this can be confusing.

Although we have already discussed // RUN400 from an assigned SSP machine display workstation, we provide the following examples showing different results.

- // RUN400 CMD-′WRKCFGSTS *CTL IBMM36*′ run from an *assigned SSP workstation, SSP session started by OS/400 STRPASTHR command, from an SSP batch job or from an ICF EVOKEd job*:

  The Work with Configuration Status command displays the status of all controllers that begin with IBMM36. In this environment, the OS/400 command runs in a batch job. The OS/400 job that actually performs the WRKCFGSTS command is typically a QNURHccc job that runs in QSYSWRK subsystem. Since WRKCFGSTS supports *PRINT output, the OS/400 supports recognizing a system command with both ″*″ (use display device) and *PRINT (use a printer device) and internally changes the command as if WRKCFGSTS CFGTYPE(*CTL) CFGD(IBMM36*) OUTPUT(*PRINT) were issued.

  This means the output is printed to the OS/400 OUTQ associated with the SSP machine′s OS/400 user profile parameter.

  Note: In OS/400, ″GO CMDWRK″ normally brings up the menu of all of the ″Work with xxxx″ commands. Since this menu has no print capability, GO CMDWRK issued through // RUN400 fails with an error message to the SSP job. In an SSP workstation example, this looks similar to:

  ```
    // RUN400 CMD-′GO CMDWRK′
    CMD running in job 001318/QUSER/QNURHMED        12:17:50

   SYS-0453  Options (0  3 )
   Error occurred in CL command
  ```

- // RUN400 CMD-′WRKCFGSTS *CTL IBMM36*′ run from an SSP job *started through the OS/400 TFRM36 or STRM36PRC command*:

  The Work with Configuration Status command displays the status of all controllers that begin with IBMM36. In this interactive environment, the OS/400 command runs in an interactive OS/400 job. That is, if the OS/400

command defaults to show display output, the actual OS/400 display appears on the workstation. The OS/400 job performing this task is the OS/400 job that did the TFRM36 command. The job name is composed of the job number (nnnnnn), OS/400 user profile name (for example, COOL), and the OS/400 workstation name (for example, DSP10).

WRKCFGSTS runs as if WRKCFGSTS CFGTYPE(*CTL) CFGD(IBMM36*) OUTPUT(*) were issued.

This means the output is shown on the workstation display. Further interactive OS/400 functions can be performed, but when the original OS/400 display (for example, WRKCFGSTS) is returned, the workstation job returns to SSP.

Note: In OS/400, ″GO CMDWRK″ normally brings up the menu of all of the ″Work with xxxx″ commands. This menu is displayed to the ″SSP workstation job″ operator who can then perform any valid OS/400 function he is authorized to use. Since the WRKCFGSTS command display contains a ″Parameters or Command″ input area, the SSP user can enter any OS/400 command the corresponding OS/400 user profile name is authorized to.

- // RUN400 CMD-′CALL QGPL/PGMA′

  If program PGMA in library QGPL has no display I/O interface or OS/400 library list problems, PGMA runs to completion. The SSP workstation session job ″hangs″ (can do no further work) until the command is completed. If the OS/400 program normally does display I/O, the OS/400 program works with the workstation device **if the SSP workstation job was started through the OS/400 TFRM36 or STRM36PRC command.**

  If the OS/400 program being called was issued by a // RUN400 statement in an assigned SSP workstation job, an SSP session started by OS/400 STRPASTHR command, from an SSP batch job, or an ICF EVOKEd job and the program being called does workstation I/O, the program fails. On the SSP side, you see a failure message similar to:

```
// RUN400 CMD-′PFREXP/BUPMENUE′
CMD running in job 002072/QUSER/QNURHMED        17:31:21

SYS-0453  Options (0  3 )
Error occurred in CL command
```

  The OS/400 job 002072/QUSER/QNURHMED job log shows one or more OS/400 error messages. The primary one is:

```
Device *REQUESTER not found while opening file BUPMENUN in library xxxxxxx.
```

It is very important to ensure an OS/400 program or command run through the // RUN400 statement has the appropriate security and OS/400 library list associated with the OS/400 user profile that runs the command.

Refer to the *Operator Tasks - Multiple Operating Systems*, SC41-8384, for detailed information.

Even though the SSP // RUN400 OCL statement results show that user profile QUSER was used in the OS/400 job that performed the function (such as QNURHMED), the profile actually used to run the command in OS/400 is the one associated with the STRM36 command (except as previously noted for an SSP session initiated through the OS/400 TFRM36 command). The examples in this chapter show user profile POWER. This ″shows as profile xxxx (QUSER) but runs

as profile yyyy (POWER)″ situation is simply the way OS/400 prestart job support works.

As previously stated for TFRM36 or STRM36PRC SSP jobs, any // RUN400 command actually runs under the user profile and job number of the OS/400 job that issued the TFRM36 command. The QNURHMED job is not involved.

Additional Benefits with // RUN400

In addition to running an OS/400 command, there are two additional benefits worth highlighting.

- Transferring between SSP machines without requiring the ILAN to be active:

  On systems with multiple SSP machines started, we have successfully used the OS/400 TFRM36 command to ″pass-through″ from one SSP machine to another without requiring the ILAN to be configured and active. For example, we were in OS/400 and issued TFRM36 to SSP machine SSP1. While in SSP1, we wanted to investigate some SSP machine SSP2 configuration parameters without finding a local workstation assigned to SSP2 and without using PASSTHRU, which requires ILAN support. So we issued the following command successfully:

  ```
  // RUN400 CMD-'TFRM36 M36(SSP2/SSP2) WSID(*DFT)'
  ```

  A valid user id and password on SSP2 is required for this to work.

- Using OS/400 ″command prompt″ capabilities when // RUN400 is run interactively:

  When signed on to an OS/400 job, the workstation user can enter the command with no parameters and use F4=Prompt to bring up a display with prompts for each keyword value. Additional help text can be viewed through use of the ″help key.″ OS/400 supports equivalent command processing when you use the sequence ″**?**command.″ For example, **?WRKOBJLCK** brings up the prompt display for Work with Object Lock:

  ```
                        Work with Object Locks (WRKOBJLCK)

  Type choices, press Enter.

  Object . . . . . . . . . . . .   _________    Name
    Library  . . . . . . . . . .     *LIB_____  Name, *LIBL, *CURLIB
  Object type  . . . . . . . . .   ______       *ALRTBL, *AUTL, *BNDDIR...
  Member . . . . . . . . . . . .   *NONE_____   Name, *NONE, *FIRST, *ALL
  Output . . . . . . . . . . . .   *_____       *, *PRINT

                                                                   Bottom
  F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
  F24=More keys
  ```

  Since you are still in SSP when you issue the // RUN400 statement, you cannot use OS/400 F4=Prompt. However, you may use ?command support as shown in the following // RUN400 example.

  ```
  // RUN400 CMD-'? WRKCFGSTS'
  ```

  The blank separating the ″?″ and the OS/400 command is required to prevent SSP from giving an OCL syntax error before running the // RUN400 command.

3.2.3 OS/400 STRM36PRC Command Example

The OS/400 user can issue the STRM36PRC command to run an SSP procedure in a named active SSP machine. STRM36PRC does not use the Internal Local Area Network connection.

STRM36PRC runs under an SSP logical workstation ID and works as the TFRM36 command, except that control returns to the OS/400 session upon completion of the SSP procedure. Successful completion of an SSP procedure requires the OS/400 PRC and PARM parameter data be entered in **upper case** and **the named SSP machine user ID and OS/400 user profile name of the job issuing STRM36PRC be the same**. If the same user name is not on both SSP and OS/400, an error message occurs indicating the USERID as the problem.

Additionally, the started SSP machine must have been configured with the associated *M36 object configured as **AUTOSIGNON(*ENABLE)** for STRM36PRC to work successfully. AUTOSIGNON(*ENABLE) may be specified through either the CRTM36 or CHGM36 command.

The STRM36PRC can run an SSP procedure that does // RUN400. In this case, the OS/400 command on // RUN400 can be either an interactive or non-interactive OS/400 command.

The following is a STRM36PRC example:

```
STRM36PRC M36(SSP1/SSP1) PRC(LISTLIBR)
PARM('ALL,SOURCE,DDMLIB,USER,NOPAGE,,MEMBERS')
```

This example does a List Library for DDMLIB of source members.

STRM36PRC is valid only from a local twinax or ASCII attached workstation. STRM36PRC mimics a logical workstation sequence of workstation power on, user sign on, running of the SSP procedure, user sign off, and a logical workstation power off. Once the procedure has completed running, the OS/400 job is resumed.

Note: An enhancement is planned to remove the ″locally attached device only″ restriction. You must watch for this new support in future AS/400 announcements.

See **Caution on nested TFRM36 WSID(*DFT) or STRM36PRC commands** as described under 3.2.1.1, “Transferring from a Mapped Workstation” on page 66. You should review this caution if you attempt migrating portions of an SSP application to OS/400 and use nested STRM36PRC and // RUN400 statements. Nesting means the STRM36PRC does not return upon completion of the SSP procedure but instead runs the // RUN400 OCL statement.

3.2.4 Printed Output User ID Assignment Summary

Printed output generated under SSP but directed to an OS/400 spooled queue has the OS/400 signed on user profile assigned to this now OS/400 spooled file under the following scenarios:

- Signed on OS/400 user has issued the TFRM36 command to a named SSP machine and while running in that SSP machine produces SSP printed output directed to OS/400.

- Signed on OS/400 user has issued the STRM36PRC command to a named SSP machine and the running SSP procedure produces printed output directed to OS/400.
- Either TFRM36 or STRM36PRC has been used and while in SSP, the SSP // RUN400 OCL statement is used and the specified OS/400 command produces OS/400 printed output.

There are exceptions to this ″current OS/400 job″ user profile assignment. These exceptions are in the following list of ways to generate SSP printed output directed to an OS/400 spooled queue:

- Print key output
- Printed output from jobs put on the SSP JOBQ
- Printed output from EVOKed jobs
- Printed output from NRT (No Requesting Terminal) programs
- Printed output from MRT (Multiple Requesting Terminal) programs
- Printed output from a workstation **assigned** to the SSP machine
- Printed output from an SSP workstation job started through the OS/400 STRPASTHR command

In these cases, the assigned OS/400 user profile defaults to the one associated with the started the SSP machine. The OS/400 user profile assigned to the SSP machine is determined when the SSP machine is started with the STRM36 command. The STRM36 parameter USRPRF may specify:

- A specific OS/400 user profile name.
- To default to the user profile name used in the most recent STRM36 command for this SSP machine.
- To default to the user profile name defined in the SSP machine configuration object that is being applied on this STRM36 command:

  The SSP machine configuration object identifies the user profile name on the ″Define M36 Attributes″ display.

In this chapter, the SSP machines are started with user profile POWER. Spooled output as previously described for print key, printed output from jobs on the SSP JOBQ, and so on has POWER as the assigned OS/400 user profile. Each OS/400 user profile has an OUTQ parameter that determines which OS/400 spooled queue receives printed output produced by that user profile. If user profile POWER specifies OUTQ(QGPL/POWER), the SSP printed output is placed on output queue POWER in library QGPL.

3.2.5 Other SSP and OS/400 Coexistence Functions

″Other coexistence functions″ include those that require the ILAN to be configured and active, just as if SSP and OS/400 are on separate machines. These functions include Display Station Pass-Through and other ″inter system″ functions, such as accessing data files between SSPs and OS/400 through standard APPC programming, Distributed Data Management, and Object Distribution.

For example, an OS/400 user issues the STRPASTHR command or an SSP user issues a PASSTHRU OCL statement to perform normal Display Station Pass-Through support between SSP machines or SSP and OS/400. Both SSP

and OS/400 support either manual sign on or automatic (not apparent to the workstation operator) sign on.

Once signed on to the target system, the workstation user has full access to that system's capabilities subject to hardware and software features and user profile authority.

Chapter 4, “Internal Local Area Network” on page 75 describes the setup of the Internal Local Area Network for multiple SSPs coexisting with the OS/400 on the same Model 436.

Chapter 15, “Display Station Pass-Through” on page 273 provides more details on Display Station Pass-Through considerations.

Chapter 16, “Distributed Data Management” on page 279 provides more details on Distributed Data Management considerations.

Chapter 17, “Object Distribution Facility” on page 287 provides more details on Object Distribution considerations.

Chapter 4. Internal Local Area Network

Typically, physical hardware is required to connect a System/36 to an AS/400 system. On the AS/400 Advanced 36 Model 436, you have one physical hardware system on which you can run four operating systems at one time connected together logically without any communication hardware.

The AS/400 Advanced 36 Model 436 is the first computer of the AS/400 product line that supports more than one operating system running at the same time on a single AS/400 system. Because there is **no** physical connection between the operating systems, IBM has developed a new communication capability called the **Internal Local Area Network** (ILAN).

New functions are included in the AS/400 V3R6 Licensed Internal Code (LIC) in V3R6 Operating System/400 and in SSP 7.5 to support this ILAN.

The Internal Local Area Network can be used to communicate between SSP machines and OS/400 on the same Model 436 just as if each SSP and the OS/400 are ″normal remote systems″ on a LAN. LAN or twinaxial attached workstations can be ″owned by an SSP or OS/400″ and through standard SSP and OS/400 support, can:

- Access data on a record level or copy file function (DDM) from another SSP or OS/400 on the same Model 436 or an actual remote system.
- Access interactive applications (Display Station Pass-Through) running on another SSP or OS/400 on the same Model 436 or an actual remote system.
- Exchange files through DDM or SNA Distribution Services (SNADS) and Object Distribution Facility (ODF) capabilities running on another SSP or OS/400 on the same Model 436 or an actual remote system.
- Submit jobs through SNA Distribution Services (SNADS) and Object Distribution Facility (ODF) capabilities running on another SSP or OS/400 on the same Model 436 or an actual remote system.
- Exchange office documents through SNA Distribution Services (SNADS) running on another SSP or OS/400 on the same Model 436 or an actual remote system.

Operating System/400 (OS/400) and up to three SSP machines can be started simultaneously on the same AS/400 Advanced 36

4.1 Internal Local Area Network Configuration Table

You can use the following table entries to set up the Internal Local Area Network example configuration for one OS/400 and three SSP machines.

Important Note

All of the functions performed over the ILAN are based on Advanced Program to Program Communications (APPC) support. If you are familiar with heritage System/36 APPC support under the Inter System Communications Facility (ICF) support, many of the ILAN configuration parameters are similar to this ICF support.

Setting up ILAN configuration on an SSP or OS/400 is very similar to setting up a real LAN configuration on a System/36 or an AS/400 system.

Within an SSP machine, ICF LAN and APPC-based line and subsystem member configurations are used. In OS/400, LAN and APPC-based control unit and device descriptions are used. However, there are some differences. **Before configuring your ILAN, you should first read this entire chapter.**

An excellent resource for additional information is the *Advanced 36 Operator Tasks - Multiple Operating Systems*, SC41-8384.

The values in Table 3 are suggested values. The ILAN definition for the connection between OS/400 and an SSP Machine 1 (SSP1) is already on your system, but you need to make some minor changes. If you want to communicate among multiple SSP machines, you must do additional configuration but the steps can be expedited by referencing the IBM-provided configuration. If you only want to have only a single SSP Machine active, you can skip to task 4.4, "How to Start and Maintain Internal Local Area Network" on page 107.

The reverse image numbers in the following table refer to the field to the right.

For example: **1** refers to system IM436M06.

Table 3. Internal Local Area Network Table

Term	#	OS/400 Machine	#	SSP Machine 1	#	SSP Machine 2	#	SSP Machine 3
System Name	1	IM436M06	2	IBMM3601	3	IBMM3602	4	IBMM3603
Local Control Point Name	5	IM436M06	6	IBMM3601	7	IBMM3602	8	IBMM3603
Local network Identification	9	ITSCNET	10	ITSCNET	11	ITSCNET	12	ITSCNET
APPC Controller Description OS/400		Not applicable	13	QILANM3601	14	QILANM3602	15	QILANM3603
Configuration List	16	QAPPNRMT		SECEDIT COMM		SECEDIT COMM		SECEDIT COMM
Line member description		Not applicable	17	ILANLINE	18	ILANLINE	19	ILANLINE
Subsystem member description		Not applicable	20	ILANSBS	21	ILANSBS	22	ILANSBS
ILAN Adapter Address	23	400000000000	24	400000000001	25	400000000002	26	400000000003
Local Exchange-ID	27	00000	28	00001	29	00002	30	00003
Local Block-ID	31	056	32	03E	33	03E	34	03E
Source Service Access Point	35	04	36	08	37	0C	38	10

These reverse image numbers are used in the examples throughout this chapter.

Note: Although functions used across the ILAN **do not require** special user authorization between users on each operating system, you should consider user profile security on the target system - the one doing the work. A typical scenario is to have the same user profile (also called user id) on both the source and target systems. The SSP SECEDIT COMM Procedure provides a similar function to the OS/400 configuration list support (Work with Configuration List (WRKCFGL) command) for defining how APPC security works. Refer to 4.3.4,

"OS/400 Configuration List Support" on page 89 and 4.3.5, "SSP Security Edit Communications" on page 93 for more information.

If you want to use your own naming convention, you can use the worksheet in Table 4 to write them down. The examples shown in this redbook refer to Table 3 on page 76, but you can also use your own entries from Table 4.

Table 4. Internal Local Area Network Table Worksheet

Term	#	OS/400 Machine	#	SSP Machine 1	#	SSP Machine 2	#	SSP Machine 3
System Name	1		2		3		4	
Local Control Point Name	5		6		7		8	
Local network Identification	9		10		11		12	
APPC Controller Description OS/400		Not applicable	13		14		15	
Configuration List	16			Not applicable		Not applicable		Not applicable
Line member description		Not applicable	17		18		19	
Subsystem member description		Not applicable	20		21		22	
ILAN Adapter Address	23		24		25		26	
Local Exchange-ID	27		28		29		30	
Local Block-ID	31	056	32	03E	33	03E	34	03E
Source Service Access Point	35	04	36	08	37	0C	38	10

The Network Attribute Table worksheet (Table 5) is used in 4.3.1, "OS/400 Network Attributes of the AS/400 Advanced 36" on page 85.

Table 5. OS/400 Network Attribute Table (DSPNETA Command)

Description	Command Parameter	Parameter Value
Current System Name	SYSNAME	
Local Network ID	LCLNETID	
Local Control Point Name	LCLCPNAME	
Default local Location	LCLLOCNAME	
Default Mode	DFTMODE	
APPN Node Type	NODETYPE	

4.2 Using Entries in an Example

Based on Table 3 on page 76, this topic shows an example of the configuration steps that are actually used in subsequent topics, beginning with 4.3, "The Internal Local Area Network Configuration" on page 80.

A command or prompt display refers to the table entries using the reverse image numbers **nn**. Look at the table for the corresponding entries. The ILAN configuration examples follow this outline:

1. The command, procedure and function key to show a display.
2. The name of the display that is shown.
3. The display itself after you have typed the entries.
4. The entries you need to type.
5. The function keys you have to press.

Note: Function keys 1 to 24 are referred to as F1 to F24 respectively.

Example:

Type the following OS/400 command and press F4:

WRKCFGSTS

The Work with Configuration Status display is shown.

```
                    Work with Configuration Status (WRKCFGSTS)

  Type choices, press Enter.

  Type . . . . . . . . . . . . . .   *CTL_         *NWS, *NWI, *LIN, *CTL, *DEV

  Configuration description  . . .   QILANM3601 13  Name, generic*, *ALL, *CMN...
  Output . . . . . . . . . . . . .   *             *, *PRINT




                                                                            Bottom
  F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cancel
  F13=How to use this display        F24=More keys
```

Type the required parameter into the fields.

1. Type = *CTL.
2. Configuration description **13** .
3. Press Enter.

Now your display should look similar to this.

```
                    Work with Configuration Status (WRKCFGSTS)

  Type choices, press Enter.

  Type . . . . . . . . . . . . . . > *CTL          *NWS, *NWI, *LIN, *CTL, *DEV
  Configuration description  . . . > QILANM3601    Name, generic*, *ALL, *CMN...
  Output . . . . . . . . . . . . . > *             *, *PRINT
  Range  . . . . . . . . . . . . .   *NET          *NET, *OBJ
  Status . . . . . . . . . . . . .   *ALL          *ALL, *ACTIVE, *FAILED...




                                                                          Bottom
  F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cancel
  F13=How to use this display        F24=More keys
```

Press F3 to leave the display.

The following list contains a description of the terms used in Table 3 on page 76.

Term	Meaning
System Name	The system name should be a unique identifier in your network. It specifies the name assigned to the system. To keep the configuration simple, use the same name for the system name and the local control point name. **Note:** The shipped system name is Sxxxxxxx where xxxxxx is the serial number of your AS/400 Advanced 36. In our example, we have previously changed the shipped name to IM436M01.

Local Control Point Name

The local control point name is the identifier for the local system as a *node* in an APPC or APPN network. This name is exchanged between the local and the remote system (node) to assist in validating the contact between two nodes and to ensure the node names are unique within the network. The *system name* is not exchanged at the APPC or APPN level. In SNA, a control point name, a local location name and network identification make the system(node) unique. A node may have multiple *local location names*, but this is is not necessary for the Internal Local Area Network configuration.

Local Network Identification

The local network identification is the name of your network.

APPC Controller Description OS/400

APPC controller description specifies the route from the local system to the remote system.

Configuration List

The configuration list contains the names of remote systems. The configuration list is used in APPN networks but is optional for OS/400.

Line Member Description

The line member description is used to define the remote systems on the SSP machine.

Subsystem Member Description

The subsystem member description is used to define the remote system on the SSP Machine.

ILAN Adapter Address

The ILAN adapter address is a unique identifier of a system in a Local Area Network.

Local Exchange-ID

The local exchange-ID is a unique identifier of a system in a Local Area Network (or Wide Area Network (WAN) - remote communication lines).

Note: The OS/400 exchange-ID is eight digits long and specifies the remote exchange identifier of this controller. The controller sends (exchanges) its identifier to another location when a connection is established. The 8-digit hexadecimal identifier contains three digits for the block number and five digits for the identifier of the specific controller. For example, the exchange-ID of System IBMM3601 (**2**) is **32** + **28** = 03E00001 as listed in Table 3 on page 76.

Local Block-ID The AS/400 system uses 056 and S/36 uses 03E. Within IBM, each SNA product is assigned a unique ″local block id″. The System/36 is assigned ″03E″ and the AS/400 system is assigned ″056″. The Local block-ID is an identifier of a system type in the Local Area Network.

Source Service Access Point

The Source Service Access Point (SSAP) is a unique identifier of a system. The SSAP of the local system is used as the

Destination Service Access Point (DSAP) on the remote system in a Local Area Network.

4.3 The Internal Local Area Network Configuration

You can use the following examples to create an Internal Local Area Network on your system that supports up to four operating systems. The examples are developed for a AS/400 Advanced 36 Model 436 after installation of Operating System/400 (OS/400) and System Support Program (SSP).

Note: At the time the example configuration was performed, there was no other communication definition on the system.

The examples require the following software to be installed in an SSP machine and the SSP IPLed (started through the STRM36 command).

1. OS/400 Version 3 Release 6
2. System Support Program Release 7.5
3. Object Distribution Facility
4. System Support Program Base Communication Support
5. System Support Program Extended Communication Support
6. System Support Program Display Station Pass-Through
7. System Support Program LAN Communication Support
8. System Support Program Distributed Data Management

Except for OS/400, all of the software in the preceding list is part of SSP, but some must be specifically selected during installation. (Note that each SSP running on the Model 436 can have different SSP functions and languages installed and be at different PTF levels.) To verify that they are installed, sign on to the SSP machine and type:

1. `CNFIGSSP`
2. `Press Enter.`

The CNFIGSSP display is shown.

```
  1.0           CNFIGSSP  -  MAIN MENU                                  W1

Select one of the following:
   1. How to use CNFIGSSP
   2. Create, change, or delete a configuration member
   3. Review a configuration
   4. Print a configuration

  10. Configuration support aids

  12. Apply change to the master configuration record
  13. Rebuild the master configuration record (update
      to next release)
  14. End CNFIGSSP

 Option:       3




 Cmd3-Previous menu
   Help text is available throughout the CNFIGSSP
   procedure by pressing the help key
```

Type the required parameter into the field.

1. Option = 3
2. Press Enter.

The CNFIGSPP display 3.0 is shown.

```
   3.0               CONFIGURATION MEMBER DEFINITION                    W1



  Select one of the following for review:
    4. Configuration member
    5. Master configuration

  Option . . . . . . . . . . . . . . . . . . . . . . . . .    5



  Cmd3-Previous menu
```

Type the required parameter into the field.

1. Option = 5
2. Press Enter.

The CNFIGSPP display 6.0 is shown.

```
 6.0                CONFIGURATION MEMBER DESCRIPTION           SYSCNFIG   W1

 1. Describe the configuration member (up to 60 characters):

 2. Specify main storage size in K-bytes . . . . .  0128-8192    8192

 3. Specify disk storage size in M-bytes . . . . .  0030-4295    0207



 Cmd3-Previous menu
```

Type the required parameter into the field.

1. Press Enter.

The CNFIGSPP display 5.0 is shown.

```
 5.0                  CONFIGURATION MEMBER MENU                SYSCNFIG   W1


 Select one of the following:

 1. Work with display stations and printers
 2. Add or delete program products, optional SSP, and features
 3. Define base SSP values
 4. Specify sizes for disk VTOC, history file, and task work area

If no more changes are to be made to your configuration member
select the following option:

 5. Save configuration member and return to main menu for CNFIGSSP

 Option:   2



 Cmd3-Previous menu        Cmd19-Cancel
```

Type the required parameter into the field.

1. Option = 2
2. Press Enter.

The CNFIGSPP display 23.0 is shown.

```
23.0            CNFIGSSP - PROGRAMMING SUPPORT                  SYSCNFIG   W1


Type a '+' (plus) for each item that is to be added.
Type a '-' (minus) for each item that is to be deleted.
Blank indicates no change.

1. Programmers and Operators Productivity
   Aid (POP)  . . . . . . . . . . . . . . . . . . . . .  *     &
2. Value Added Software
   Package (VASP) . . . . . . . . . . . . . . . . . . .  *     &
3. S/36 to AS/400 Migration
   Analyzer (ANALYZE) . . . . . . . . . . . . . . . . .  *     &
4. Transition Aid . . . . . . . . . . . . . . . . . . .  *     &



* - Indicates support that is currently on the system
& - Indicates support that will be copied during a rebuild
    of the master configuration record

Cmd3-Previous menu       Cmd19-Cancel
```

Page through the displays until you reach the display for 19.2.

1. Press Enter.

The CNFIGSPP display 19.2 is shown.

```
19.2            CNFIGSSP - PROGRAMMING SUPPORT                  SYSCNFIG   #1
                              REVIEW MODE

Type a '+' (plus) for each item that is to be added.
Type a '-' (minus) for each item that is to be deleted.
Blank indicates no change.

1. DisplayWrite/36 (DW/36)  . . . . . . . . . . . . .
   2. Personal Services/36  . . . . . . . . . . . . .
      3. Document library services (DLS)  . . . . . .
      4. PROFS bridge . . . . . . . . . . . . . . . .
5. Query/36 . . . . . . . . . . . . . . . . . . . . .  *
6. Object Distribution Facility (ODF) . . . . . . . .  *




* - Indicates support that is currently on the system
& - Indicates support that will be copied during a rebuild
    of the master configuration record

Cmd3-Previous menu       Cmd19-Cancel
```

Check that Object Distribution Facility is installed.

'*' indicates support that is currently on the system.

Page through the displays until you reach the display for 21.1.

1. Press Enter.

The CNFIGSPP display 21.1 is shown.

```
21.1            CNFIGSSP - PROGRAMMING SUPPORT                  SYSCNFIG   W1


Type a '+' (plus) for each item that is to be added.
Type a '-' (minus) for each item that is to be deleted.
Blank indicates no change.

      FEATURE 6001 ----- COMMUNICATIONS

1. Base communications support  . . . . . . . . . . . .  *     &
2. X.25 support . . . . . . . . . . . . . . . . . . . .  *     &
3. Extended communications support  . . . . . . . . . .  *     &
   4. Asynchronous communications support . . . . . .  *     &




* - Indicates support that is currently on the system
& - Indicates support that will be copied during a rebuild
    of the master configuration record

Cmd3-Previous menu       Cmd19-Cancel
```

Check that Base communications support and Extended communications support are installed.

'*****' indicates support that is currently on the system.

Page through the displays until you reach the display for 22.1.

1. Press Enter.

The CNFIGSPP display 22.1 is shown.

```
22.1            CNFIGSSP - PROGRAMMING SUPPORT                  SYSCNFIG   #1


Type a '+' (plus) for each item that is to be added.
Type a '-' (minus) for each item that is to be deleted.
Blank indicates no change.


1. Feature 6079 -
   Display Station Pass-Through support (DSPT)  . . .  *     &
2. Feature 6096 - APPN  . . . . . . . . . . . . . . .  *     &
3. LAN Communications support . . . . . . . . . . . .  *     &




* - Indicates support that is currently on the system
& - Indicates support that will be copied during a rebuild
    of the master configuration record

Cmd3-Previous menu       Cmd19-Cancel
```

Check that Display Station Pass-Through, APPN, and LAN Communication support are installed.

'*****' indicates support that is currently on the system.

Page through the displays until you reach the display for 22.2.

1. Press Enter.

The CNFIGSPP display 22.2 is shown.

```
22.2            CNFIGSSP - PROGRAMMING SUPPORT                SYSCNFIG   #1
                             REVIEW MODE

Type a '+' (plus) for each item that is to be added.
Type a '-' (minus) for each item that is to be deleted.
Blank indicates no change.

1. Feature 6004 - MSRJE . . . . . .
2. Feature 6005 -
   Data Encryption Subroutine   . . . . . .
3. Feature 6006 -
   Distributed Disk File Facility (DDFF)  . . . . . .
4. Feature 6037 -
   Distributed Data Management (DDM)  . . . . . .  *



* - Indicates support that is currently on the system
& - Indicates support that will be copied during a rebuild
    of the master configuration record

Cmd3-Previous menu       Cmd19-Cancel
```

Check that Distributed Data Management is installed.

'*' indicates support that is currently on the system.

Leave **CNFIGSSP**.

1. Press F3.

If the program products are not on your system, you must install them. Refer to *AS/400 Advanced 36 Getting SSP and OS/400 Installed and Running*, SC21-8377, for the instructions how to install the required software.

4.3.1 OS/400 Network Attributes of the AS/400 Advanced 36

To set up your Internal Local Area Network, you have to verify some information prior to the setup. The information is used to configure your ILAN.

Display Network Attributes: To review the network attributes of your AS/400 Advanced 36, do the following:

1. Sign on to the OS/400 console.
2. Type DSPNETA on the command line.
3. Press Enter.

The Display Network Attribute display is shown.

```
                          Display Network Attributes
                                                                 System:   IM436MO6
   Current system name  . . . . . . . . . . . . . . . :   IM436MO6  1
     Pending system name  . . . . . . . . . . . . . . :
   Local network ID . . . . . . . . . . . . . . . . . :   ITSCNET   9
   Local control point name . . . . . . . . . . . . . :   IM436MO6  5
   Default local location . . . . . . . . . . . . . . :   IM436MO6
   Default mode . . . . . . . . . . . . . . . . . . . :   BLANK
   APPN node type . . . . . . . . . . . . . . . . . . :   *NETNODE
   Data compression . . . . . . . . . . . . . . . . . :   *NONE
   Intermediate data compression  . . . . . . . . . . :   *NONE
   Maximum number of intermediate sessions  . . . . . :   200
   Route addition resistance  . . . . . . . . . . . . :   128
   Server network ID/control point name . . . . . . . :   *LCLNETID   *ANY




                                                                          More...
   Press Enter to continue.

   F3=Exit   F12=Cancel
```

Write the following parameters into Table 4 on page 77 as indicated below.

1. Current system name **1**
2. Local network ID **9**
3. Local control point name **5**
4. Default local location (not required - defaults to Local control point name)
5. Default mode (not required - BLANK is defaulted on both OS/400 and SSP)
6. APPN node type (not required - OS/400 *NETNODE (network node) and SSP APPN intermediate routing are optional and not required for Internal Local Area Network support)

Exit the DSPNETA display by pressing Enter.

Change Network Attributes:

Read this!

Note: Do not change the network attributes if you are already using some communication support. Instead, change the entries in Table 3 on page 76 to match your existing network attribute definitions. You can use Table 4 on page 77 to document your entries and refer to Table 4 on page 77 instead of Table 3 on page 76 for the suggested entries within the examples.

To use this example definition, you have to change the ″shipped IBM names″ in the network attributes of the OS/400.

To change the Network Attribute, type the following on the command line:

1. CHGNETA
2. Press F4.

The Change Network Attributes display is shown.

```
                        Change Network Attributes (CHGNETA)

 Type choices, press Enter.

 System name  . . . . . . . . . . SYSNAME        IM436M06   1
 Local network ID . . . . . . . . LCLNETID       ITSCNET    9
 Local control point name . . . . LCLCPNAME      IM436M06   5
 Default local location name  . . LCLLOCNAME     IM436M06   5
 Default mode . . . . . . . . . . DFTMODE        BLANK
 Node type  . . . . . . . . . . . NODETYPE       *NETNODE
 Data compression . . . . . . . . DTACPR         *SAME
 Intermediate data compression  . DTACPRINM      *SAME
 Maximum intermediate sessions  . MAXINTSSN      *SAME
 Route addition resistance  . . . RAR            *SAME
 Network node servers:            NETSERVER
   Server network ID  . . . . . .                *SAME
   Control point name . . . . . .
                          + for more values
 Alert status . . . . . . . . . . ALRSTS         *SAME
 Alert logging status . . . . . . ALRLOGSTS      *SAME
                                                                   More...
 F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
 F24=More keys
```

Type the required parameters into the fields:

Refer to Table 3 on page 76 for the values.

1. System name = **1**
2. Local network ID = **9**
3. Local control point name = **5**
4. Default local location = **5**
5. Default mode = BLANK
6. Node type = *NETNODE

Press Enter.

To activate the changes, you must perform an IPL on the AS/400 Advanced 36

4.3.2 OS/400 System Values

The OS/400 can create the necessary ILAN definition almost automatically. All you have to do is to check and change a few OS/400 system values.

QAUTOCFG=Autoconfigure Devices: Automatically configure devices. This specifies whether devices that are added to the system are configured automatically. The system value QDEVNAMING controls the names the system uses when autoconfiguring. A change to this system value takes effect immediately. The shipped value is 1 (ON).

QAUTORMT=Autoconfigure of Remote Controllers: Automatically configure remote controllers. This specifies whether remote controllers added to the system are configured automatically. A change to this system value takes effect immediately. The shipped value is 1 (ON).

QAUTOVRT=Autoconfigure Virtual Devices: Automatically configure virtual devices. This specifies the number of virtual devices to automatically configure. The shipped value is 0. **Change the number to 9999**. A change to this system value takes effect immediately.

Note: Be aware of the following security consideration with this system value. The number of sign-on attempts allowed at remote devices increases when QAUTOVRT is greater than 0. The number of attempts allowed through pass-through is QAUTOVRT multiplied by the maximum number of Signon attempts (the system value QMAXSIGN).

4.3.3 Create ILAN APPC Controller Definition for OS/400

For most OS/400 communication configurations, OS/400 requires a *line description*, a *control unit description*, and a *device description*. However, there is no line description required when using the new description type for V3R6 APPC controller, ***ILAN**.

This controller **does not** use a communication line since all communications are within one system. This link type allows multiple operating systems (running on one physical system) to communicate without requiring an OS/400 line description object.

Note: If LINKTYPE(*ILAN) is specified, the value specified for NODETYPE must be *LENNODE or *NETNODE, and the value specified on the SSAP parameter must be different than the value specified on the DSAP parameter.

There are several ways to create the controller. In our example, we created CL programs. The CL programs have one advantage over a command; the CL programs are reusable. You can also type the command sequence:

1. Type CRTCTLAPPC.
2. Press F4.
3. Press F11 to get the command keywords.
4. Type the required parameter.

Note: The parameters are the same as shown in the CL program examples.

QILANM3601: The first ILAN APPC control unit and device descriptions are automatically created when you install the OS/400 Operating System. The name of the APPC controller is QILANM3601, which is the default definition. We used the default definition in our example. If the controller is not on your system, you can recreate the controller using the following command:

```
CRTCTLAPPC CTLD( 13 ) LINKTYPE(*ILAN) ONLINE(*YES) +
           APPN(*YES) RMTNETID(*NETATR) +
           RMTCPNAME( 6 ) +
           EXCHID( 32  28 ) +
           DSAP( 36 ) SSAP( 35 ) +
           NODETYPE(*LENNODE) +
           TEXT('System Supplied ILAN +
           Controller Description')
```

Refer to Table 3 on page 76 for the values.

QILANM3602: Use the following CL program to create the ILAN APPC controller definition for the second logical SSP machine. Use the program as a backup.

```
PGM
CRTCTLAPPC CTLD( 14 ) LINKTYPE(*ILAN) ONLINE(*YES) +
             APPN(*YES) RMTNETID(*NETATR) +
             RMTCPNAME( 7 ) +
             EXCHID( 33  29 ) +
             DSAP( 37 ) SSAP( 35 ) +
             CPSSN(*YES) +
             NODETYPE(*LENNODE) TMSGRPNBR(1) +
             AUTODLTDEV(1440) USRDFN1(*LIND) +
             USRDFN2(*LIND) USRDFN3(*LIND) +
             TEXT('SSP Machine 2 ILAN Controller +
             Description') CMNRCYLMT(2 5)
ENDPGM
```

Refer to Table 3 on page 76 for the values.

Note: The exchange-id is one parameter built from two table entries.

QILANM3603: Use the following CL-program to create the ILAN APPC controller definition for the third logical SSP Machine. Use the program as a backup.

```
PGM

CRTCTLAPPC CTLD( 15 ) LINKTYPE(*ILAN) ONLINE(*YES) +
             APPN(*YES) RMTNETID(*NETATR) +
             RMTCPNAME( 8 ) +
             EXCHID( 34  30 ) +
             DSAP( 38 ) SSAP( 35 ) +
             CPSSN(*YES) +
             NODETYPE(*LENNODE) TMSGRPNBR(1) +
             AUTODLTDEV(1440) USRDFN1(*LIND) +
             USRDFN2(*LIND) USRDFN3(*LIND) +
             TEXT('SSP Machine 3 ILAN Controller +
             Description') CMNRCYLMT(2 5)
ENDPGM
```

Refer to Table 3 on page 76 for the values.

Note: The exchange-id is a parameter built from two table entries.

Read this!

You have completed the ILAN configuration on the OS/400 machine.

The next topic, 4.3.4, “OS/400 Configuration List Support,” is optional.

Sign off from the OS/400 machine.

Continue your configuration at 4.3.6, “Starting an SSP Machine” on page 94 if you want to bypass the APPN configuration list support.

4.3.4 OS/400 Configuration List Support

OS/400 Configuration List support provides several functions for Asynchronous connectivity and APPC and APPN (Advanced Peer to Peer Networking) connectivity. For SSP to OS/400 connectivity over the ILAN purposes we are concerned with the OS/400 APPN *remote configuration list* support for security considerations.

Full OS/400 Configuration List Support Note

For full OS/400 Configuration List support you are referred to:

- *AS/400 Communications Configuration*, SC41-3401
- *AS/400 APPN Support*, SC41-3407

A full discussion of APPN support is beyond the scope of this redbook. However, a brief discussion of APPC and APPN is presented here as background information as you may optionally specify APPN to be used by the SSP machine and OS/400 operating systems within the same Model 436 **and OS/400 APPN Remote Location List interfaces are used to enforce some APPC security between SSP and OS/400.**

Keep in mind that configuration list entries are **not mandatory**. APPN can work without any configuration list entries.

4.3.4.1 APPC compared to APPN

The two are very different. APPC is the SNA Logical Unit (LU) protocol used to communicate between intelligent systems. APPC is formally called an LU 6.2 protocol. This is an end-to-end protocol that is not dependent on whether there are any intermediate nodes (routing systems) between the two end programs. LU 6.2 is the underlying protocol for user-written APPC programs and IBM-provided functions such as 5250 Display Station Pass-Through, Distributed Data Management (DDM), and SNA Distribution Services (SNADS) used to distribute documents and Object Distribution Facilities (ODF) ″objects″. The APPC security discussed in this topic is session level security that applies to an incoming program start request on the target system.

APPN is Advanced Peer-to-Peer Networking. It provides functions such as intermediate node routing and remote location name resolution (″directory services″).

APPC and other protocols such as LU 2 (3270 display data streams) can be routed over APPN networks as well as other non-APPN networks such as SNA subarea networks and TCP/IP networks (through IBM AnyNet support). AnyNet is supported on OS/400 but not SSP.

Both OS/400 and SSP 7.5 support APPN routing capabilities. APPN network node definitions are not required for the SSP and OS/400 to communicate with each other on the same Model 436. However, you may want to configure APPN on the Model 436 if you want either SSP or OS/400 to route **real remote system data** through the SSP machine to OS/400, or through OS/400 to an SSP on the same Model 436.

See Chapter 12, “Client Access/400 for OS/2 to M36 through OS/400 on Token-Ring” on page 231 and Chapter 13, “Client Access/400 for OS/2 to OS/400 through M36 on Token-Ring” on page 245 for examples of using APPN with attached personal computer workstations.

4.3.4.2 Why Use the Configuration List?

OS/400 supports a *local location list* and a *remote location list*. Use of the configuration list support is not required but offers some advantages if used.

A local configuration list is used if your system is to be known by different names in your network. You can refer to your system by other LU names than the one defined in the OS/400 network attributes (DSPNETA command).

A remote configuration list is used for security reasons or if you want to enable access from a network that does not have an APPN LU search algorithm. You have to define the remote configuration list if you want to have a remote location be able to pass security information such as the remote job's USERID, without requiring a password to also be sent by the remote system.

In the ILAN environment you may not want to use this "USERID" support when initially communicating between an SSP machine and an OS/400. However, if you, for example use DDM to access files in one operating system from programs running in another operating system, you may want to use the OS/400 configuration list and SSP Security Edit Communications (SECEDIT COMM) to control what user profiles the data access work runs under.

The following sections under this topic and 4.3.5, "SSP Security Edit Communications" on page 93 show how to enforce security between SSP and OS/400 function requests and how to cause a user profile on a target operating system to be used. **The steps described must be followed if SSP security has been activated** and OS/400 security is at level 30 or higher. This is the recommended minimum security level for the Model 436 SSP and OS/400 environment. For more information, refer to the "Security Considerations" appendix in the *Advanced 36 Coexistence User's Guide*, SC21-8386.

4.3.4.3 Create Remote APPN Configuration List

After your ILAN OS/400 APPC controller has been created, you can add the SSP machine "system" (local location name) to your remote APPN configuration list if you want to use this support.

IBM supplies a standard configuration list called QAPPNRMT. As shipped from IBM, there are no entries in this list and you use a "create command" to place entries into the list.

If you are on a new Model 436 with no previous use of the remote configuration list function, the remote configuration list QAPPNRMT does not exist. If you have been using OS/400 APPC functions, the remote configuration list QAPPNRMT may already exist. In either case, you need to "add" configuration list entries for the up to three SSP machines.

The following steps assume the list QAPPNRMT **does not already exist**:

1. Type the following command on the command line and press Enter:

   ```
   CRTCFGL TYPE(*APPNRMT)
   ```

   If the QAPPNRMT configuration list already exists, you get message CPF260D: Configuration list QAPPNRMT already exists. Otherwise, you get the Create Configuration List displaycreen shown in Figure 38 on page 92:

```
                          Create Configuration List                  IM436M06
                                                              05/20/96  16:38:18
Configuration list  . . :   QAPPNRMT
Configuration list type :   *APPNRMT
Text  . . . . . . . . . :   *BLANK

Type information, press Enter.

--------------------------APPN Remote Locations---------------------------
          Remote              Remote    Control
Remote    Network   Local     Control   Point     Location          Secure
Location  ID        Location  Point     Net ID    Password           Loc
  A                             B                                    C
_______   *NETATR   *NETATR   _______   *NETATR   ______________    *NO
_______   *NETATR   *NETATR   _______   *NETATR   ______________    *NO
_______   *NETATR   *NETATR   _______   *NETATR   ______________    *NO
_______   *NETATR   *NETATR   _______   *NETATR   ______________    *NO
_______   *NETATR   *NETATR   _______   *NETATR   ______________    *NO

                                                                     More...
F3=Exit   F11=Display session information   F12=Cancel   F17=Top   F18=Bottom
```

Figure 38. Create Configuration List Example

2. Type the required parameter values into the fields **A** (Remote Location) and **B** (Remote Control Point) and **C** (Secure Loc) as shown below, using Table 3 on page 76.

   For SSP machine 1, enter **6** (IBMM3601) into both parameters **A** and **B** and *YES into parameter **C**.

   For SSP machine 2, enter **7** (IBMM3602) into both parameters **A** and **B** and *YES into parameter **C**.

   For SSP machine 3, enter **8** (IBMM3603) into both parameters **A** and **B** and *YES into parameter **C**.

3. Press Enter.

This creates the configuration list QAPPNRMT and specifies up to three entries for three SSP machines. The *YES under ″secure location″ enables an APPC function request (such as Distributed Data Management) coming into OS/400 to be run under the SSP job′s user profile that was passed with the function request. The same user profile must exist on both the source SSP and the target OS/400.

To verify your configuration list, you use either the Work with Configuration List (WRKCFGL) command and menu options or enter the Display Configuration List (DSPCFGL) command. Your DSPCFGL CFGL(QAPPNRMT) command screen should look similar to this:

```
                          Display Configuration List                IM436M06
                                                              05/20/96  10:29:06
 Configuration list . . . . . . . . :   QAPPNRMT
 Configuration list type  . . . . . :   *APPNRMT
 Text . . . . . . . . . . . . . . . :

 -----------------APPN Remote Locations------------------
          Remote              Remote    Control
 Remote   Network   Local     Control   Point     Secure
 Location ID        Location  Point     Net ID     Loc
 IBMM3601 ITSCNET   IM436M06  IBMM3601  ITSCNET    *YES
 IBMM3602 ITSCNET   IM436M06  IBMM3602  ITSCNET    *YES
 IBMM3603 ITSCNET   IM436M06  IBMM3603  ITSCNET    *YES


                                                                   Bottom
 Press Enter to continue.

 F3=Exit   F11=Display session information   F12=Cancel   F17=Position to
```

Figure 39. OS/400 Remote Configuration List Security Example

Note:

1. SSP PASSTHRU and SNADS distributions successfully connect to OS/400 regardless of whether *NO or *YES is specified for Secure Loc.
2. When Secure Loc *YES is specified incoming DDM requests from an SSP machine runs under the SSP user profile passed at the beginning of the DDM connection. This is the recommended approach, but works only if SSP and OS/400 have the same user profile defined on both operating systems.
3. This ″Secure Location″ specification is termed ″already verified″ in APPC LU6.2 terminology. This means the user profile has already been verified on the source system so the target system accepts this user profile.

Press F3 to exit this display.

4.3.5 SSP Security Edit Communications

SSP provides APPC security (USERID and password or just USERID) through the Security Edit Communications procedure - SECEDIT COMM. The SECEDIT COMM support equivalent to OS/400 Remote Configuration List QAPPNRMT ″**Secure Loc**ation″ support is shown in Figure 40.

```
                                SECEDIT COMM

            Edit location profiles in the user identification file

   Mode: Browse or Update - Key in changes and press Enter

                                                                Optional-*
 Remote location name . . . . . . . . . . . . . . . . . . . .  IM436M06

 Location password  . . . . . . . . . . . . . . . . . . . . *NULL__________

 Require user password to start each procedure? . . . . . . . . . . Y,N  N

 Comment  . . . . . . . . . . . . . . . . . . . .     OS/400 on same____    *
                                                      Model 436________
                                                      ________________

  Roll keys-Page          Cmd2-Scan        Cmd3-Restart       Cmd4-Remove
  Cmd5-Add mode           Cmd6-Create password                Cmd7-End
                                                            COPR IBM Corp. 1987
```

Figure 40. SSP SECEDIT COMM Example

The value ″N″ for remote location name IM436M06 specifies that an ″already verified″ USERID (without a password) may be sent to SSP from the remote system. This means the target job runs with that USERID (profile). You need a SECEDIT COMM for the other SSP machine remote locations IBMM3602, and IBMM3603, to use the ″already verified″ support for those SSP machines.

*NULL for the Location Password is an SSP requirement for this ″already verified″ user profile. For *NULL Location Password to be valid, SSP also requires that a *NULL USERID be defined through SECEDIT USERID as shown in the following figure.

```
                                 SECEDIT USERID

            Edit location profiles in the user identification file

   Mode: Browse or Update - Key in changes and press Enter

User ID  . . . . . . . . . . . . . . . . . . . . . . . . . .   *NULL__
Password . . . . . . . . . . . . . . . . . . . . . . . . . .   _______
Security classification  . . . . . . . . . . . . . . . . M,S,O,C,D   D
Service aid authority ?  . . . . . . . . . . . . . . . . . . Y,N   N
Badge number . . . . . . . . . . . . . . . . . 00000000-99999999   _______   *
Comment  . . . . . . . . . . . . . . . . . . . .   NULL USERID._______   *
                                                   PASSWORD SET TO_____
                                                   BLANKS._____________



Roll keys-Page              Cmd2-Scan             Cmd3-Restart
Cmd4-Remove                 Cmd5-Add mode         Cmd6-Show passwords
Cmd7-End                    Cmd9-Additional information
```

Figure 41. SSP SECEDIT USERID Example

4.3.6 Starting an SSP Machine

Once an SSP machine has been created (CRTM36 command) and an SSP machine configuration object created (CRTM36CFG command), a specific SSP machine must be started in order to share data between SSPs and OS/400 on the same Model 436. The following STRM36 command example is described in detail in Chapter 3, “AS/400 Advanced 36 Configuration Example” on page 23:

```
STRM36 M36(SSP1/SSP1) IPLTYPE(*M36) USRPRF(POWER) APYM36CFG(SSP1C/SSP1)
```

This command example starts an SSP machine named as SSP1. SSP1 must be started before defining and enabling the ICF configuration to be used to communicate with other SSPs or OS/400 on the same Model 436.

STRM36 can be manually entered or it can be automatically entered in at least the following ways:

- A batch job runs and executes the STRM36 command.
- The STRM36 command is part of an OS/400 start up job automatically started by the program identified by OS/400 system value QSTRUPPGM (Start up Program).

  See the *OS/400 Work Management Guide*, SC41-4306, for more information on system values and starting jobs.
- The STRM36 command is part of an OS/400 (or other) **job scheduler function.**

  An OS/400 job scheduler function example using the Add Job Scheduler Entry (ADDJOBSCDE) command is shown:

```
ADDJOBSCDE JOB(STARTSSP) CMD(STRM36 M36(SSP1/SSP1) USRPRF(POWER)
 IPLTYPE(*M36) USRPRF(POWER) APYM36CFG(SSP1C/SSP1))
 FRQ(*WEEKLY) SCDDATE(*NONE) SCDDAY(*ALL) SCDTIME('08:00:00')
```

4.3.7 Create ILAN APPC Definition for SSP Machine

SSP has the **CNFIGICF** procedure to create the necessary definitions on your SSP machine. The definition for the first SSP machine has already been created for you. You can find the definitions in libraries **#CNFGLIB** and **#LIBRARY**. The configuration member names are **ILANSBS** for the subsystem member and **ILANLINE** for the line member.

4.3.7.1 Setting the Shipped SSP ILAN Configuration Parameters

IBM has already defined the necessary ILAN configuration for the first SSP machine to be run on the Model 436. However, IBM does not know what you want to use for your OS/400 control point (system) name. So you must change the control point name within the IBM-provided SSP machine ICF subsystem member definitions.

When an AS/400 system is shipped, the default system and control point name and local location name are all set to to **Snnnnnnn** where n is the serial number of your system. You must change the default ICF subsystem member definitions for Internal Local Area Network to specify this value for ILAN to operate correctly.

You can manually make the changes by going through the appropriate CNFIGICF menus for both the subsystem ILAN line member **ILANLINE** and the subsystem member **ILANSBS**.

However, SSP 7.5 has a new **CHGSYSVL CTLPOINT, xxxxx** procedure parameter for remote control point name that makes the necessary changes to the ICF line and subsystem members for you without requiring CNFIGICF menu input. You can use this procedure whenever you want to update your ILAN configuration.

CHGSYSVL CTLPOINT, xxxxxxxxxx simply goes into the ICF ILANLINE member and changes the shipped value for the OS/400 remote system (CNFIGICF screen 12.5 - Remote System Selection) and into the subsystem member ILANSBS and changes the shipped values representing the OS/400 *Location* and *Remote System* (CNFIGICF display 29.0 - Remote Location Selection).

Note: The SSP itself has no ICF-defined "control point name" variable. By convention, the ICF subsystem member definition for "local location name" (CNFIGICF SUBSYSTEM MEMBER DEFINITION display 22.0) is used in the APPC configuration as the SSP control point name. We strongly recommend the OS/400 have exactly the same value for *Current System Name*, *Local control point name*, and *Local location name*. This is the OS/400 default, but is not a requirement.

Figure 42 on page 96 shows the OS/400 DSPNETA values used in this example where we did not use the OS/400 machine serial number.

```
                          Display Network Attributes
                                                                System:   IM436M06
 Current system name  . . . . . . . . . . . . . . . :   IM436M06
   Pending system name  . . . . . . . . . . . . . . :
 Local network ID . . . . . . . . . . . . . . . . . :   ITSCNET
 Local control point name . . . . . . . . . . . . . :   IM436M06  5
 Default local location . . . . . . . . . . . . . . :   IM436M06
 Default mode . . . . . . . . . . . . . . . . . . . :   BLANK
 APPN node type . . . . . . . . . . . . . . . . . . :   *NETNODE
 Data compression . . . . . . . . . . . . . . . . . :   *NONE
 Intermediate data compression  . . . . . . . . . . :   *NONE
 Maximum number of intermediate sessions  . . . . . :   200
 Route addition resistance  . . . . . . . . . . . . :   128
 Server network ID/control point name . . . . . . . :   *LCLNETID   *ANY

                                                                          More...
 Press Enter to continue.
 F3=Exit   F12=Cancel
```

Figure 42. OS/400 Display Network Attributes Example

To update the IBM-provided ILAN configuration members, sign on to the console of the SSP machine you want to configure.

Type the following command on the command line and press Enter.

```
CHGSYSVL CTLPOINT, 5
```

Refer to Table 3 on page 76 for the value.

Note: The changes are only made in the configuration of the **#CNFGLIB**, **not** in **#LIBRARY**. For each SSP machine you want to have running concurrently within the OS/400 where you want to be able to use DDM, SNADS, and so on, you should repeat the CHGSYSVL CTLPOINT, xxxxxxxx command or go into CNFIGICF and manually make the same changes.

If you want to have the OS/400 communicate through the Internal Local Area Network to other SSPs and the SSPs to communicate with one another within the same system, you have to manually go through ICF configuration displays to define each additional ″remote system″. The following topics show you how to do this.

4.3.7.2 Change Line Member Definition ILANLINE

You have to repeat the following steps for **each** of your SSP machines to set up the ILAN configuration between OS/400 and your other SSP machines (if any). If you use our example, you can use the parameters from Table 3 on page 76 for each SSP machine and the OS/400 machine.

Sign on to the console of the SSP machine you want to configure.

Type the following command on the command line and press Enter.

```
CNFIGICF
```

Note: The example displays show the values for the IBMM3601 to IM436M06 connection.

The SSP-ICF CONFIGURATION MEMBER DEFINITION display 1.0 is shown.

```
1.0           SSP-ICF CONFIGURATION MEMBER DEFINITION                    W1

1. Configuration member name  . . . . . . . . . . . . . . . . . . .  ILANLINE

2. Library name . . . . . . . . . . . . . . . . . . . . . . . . . .  #CNFGLIB

3. Select one of the following:
      1. Create new member
      2. Edit existing member
      3. Create new member from existing member
      4. Remove a member
      5. Review a member
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . . 1-5  2



Cmd7-End     Cmd19-Cancel
```

Type the required parameters into the fields.

1. Configuration member name = ILANLINE.
2. Option = 2 = Edit existing member.
3. Press Enter.

The SSP-ICF CONFIGURATION MEMBER TYPE display 2.0 is shown.

```
 2.0               SSP-ICF CONFIGURATION MEMBER TYPE           ILANLINE    W1


Select one of the following options:
      1. Intra
      2. BSC
      3. SNA
      4. Async
      5. PC Support/36

   Option: 3



Cmd3-Previous display       Cmd5-Restart CNFIGICF
                            Cmd19-Cancel                COPR IBM Corp. 1986
```

Type the required parameters into the fields.

1. Option = 3 = SNA.
2. Press Enter.

The SNA CONFIGURATION MEMBER TYPE display 4.0 is shown.

```
 4.0                 SNA CONFIGURATION MEMBER TYPE             ILANLINE    W1


1. SNA member type  . . . . . . . . . . . . . . . . . . . . . . 1-4  4
      1. SNA subsystem member
      2. SNA/SDLC line member
      3. SNA/X.25 line member
      4. SNA/IBM Token-Ring Network line member


2. Will APPC or APPN be used? . . . . . . . . . . . . . . . . Y,N  Y

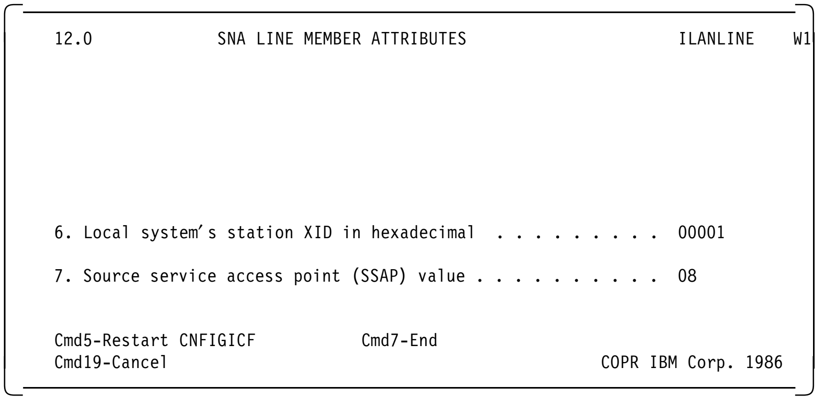


                            Cmd5-Restart CNFIGICF
                            Cmd19-Cancel                COPR IBM Corp. 1986
```

Type the required parameters into the fields.

1. SNA member type = 4 = SNA/IBM Token-Ring Network line member.
2. Will APPC or APPN be used? = Y.
3. Press Enter.

The SNA LINE MEMBER ATTRIBUTES display 12.0 is shown.



```
12.0             SNA LINE MEMBER ATTRIBUTES                      ILANLINE    W1





6. Local system's station XID in hexadecimal  . . . . . . . . .  00001

7. Source service access point (SSAP) value . . . . . . . . . .  08


Cmd5-Restart CNFIGICF           Cmd7-End
Cmd19-Cancel                                            COPR IBM Corp. 1986
```

Type the required parameters into the fields.

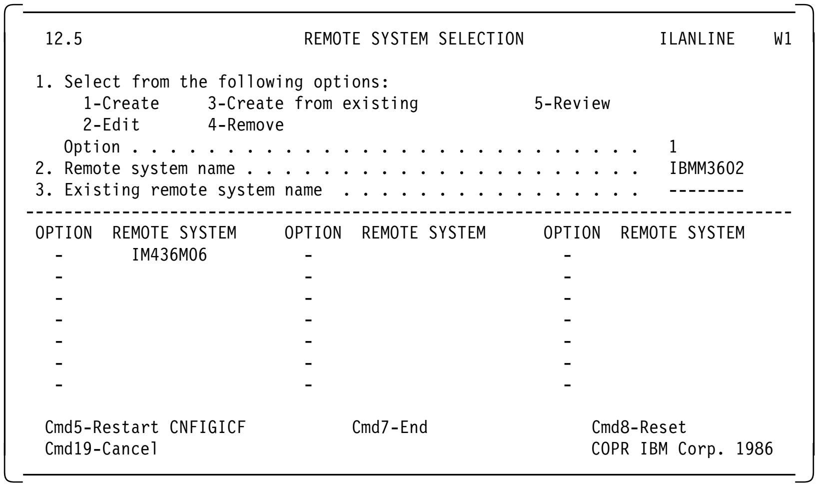
1. Local system's station XID in hexadecimal = **28** or **29** or **30** .
2. Source Service Access Point (SSAP) value = **36** or **37** or **38** .
3. Press Enter.

4.3.7.3 Create Several Remote System Configurations

Read this!

You have to run the following sequence of displays for each SSP machine that you want to access from your current SSP machine. The definition for your Operating System/400 machine should already exist.

The REMOTE SYSTEM SELECTION display 12.5 is shown.



```
 12.5                        REMOTE SYSTEM SELECTION             ILANLINE    W1

1. Select from the following options:
     1-Create     3-Create from existing            5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . .   1
2. Remote system name . . . . . . . . . . . . . . . . . . . .   IBMM3602
3. Existing remote system name  . . . . . . . . . . . . . . .   --------
--------------------------------------------------------------------------------
OPTION  REMOTE SYSTEM     OPTION  REMOTE SYSTEM      OPTION  REMOTE SYSTEM
  -       IM436M06          -                          -
  -                         -                          -
  -                         -                          -
  -                         -                          -
  -                         -                          -
  -                         -                          -
  -                         -                          -

 Cmd5-Restart CNFIGICF           Cmd7-End                 Cmd8-Reset
 Cmd19-Cancel                                             COPR IBM Corp. 1986
```

Type the required parameters into the fields.

1. Option = 1 (Create).

2. Remote system name.

   See Table 6.

3. Press Enter.

Table 6. Remote System Name

From/To	OS/400 Machine	SSP Machine 1	SSP Machine 2	SSP Machine 3
SSP Machine 1	5	Not applicable	7	8
SSP Machine 2	5	6	Not applicable	8
SSP Machine 3	5	6	7	Not applicable

Note: Refer to Table 3 on page 76 for the values.

The REMOTE SYSTEM ATTRIBUTE display 13.0 is shown.

```
13.0                REMOTE SYSTEM ATTRIBUTES                    ILANLINE    W1

                      Remote system IBMM3601
1. Remote system type . . . . . . . . . . . . . . . . . . . . . 2
  1-Host              2-Peer




 Cmd5-Restart CNFIGICF           Cmd7-End
 Cmd19-Cancel                                          COPR IBM Corp. 1986
```

Type the required parameters into the fields.

1. Remote System Type = 2 = PEER
2. Press Enter.

The REMOTE SYSTEM ATTRIBUTE display 13.0 is shown again.

```
13.0                REMOTE SYSTEM ATTRIBUTES                    ILANLINE    W1

                      Remote system IBMM3601
1. Remote system type . . . . . . . . . . . . . . . . . . . . . 2
  1-Host              2-Peer



3. Remote system's block ID in hexadecimal  . . . . . . . . . . 03E

4. Remote system's station XID in hexadecimal . . . . . . . . . 00002


Cmd5-Restart CNFIGICF           Cmd7-End
Cmd19-Cancel                                          COPR IBM Corp. 1986
```

Type the required parameters into the fields.

See Table 7 on page 100

1. Remote system's block ID in hexadecimal
2. Remote system's station XID in hexadecimal
3. Press Enter.

Table 7. Remote System Attribute				
From/To	**OS/400 Machine**	**SSP Machine 1**	**SSP Machine 2**	**SSP Machine 3**
SSP Machine 1	31 27	Not applicable	33 29	34 30
SSP Machine 2	31 27	32 28	Not applicable	34 30
SSP Machine 3	31 27	32 28	34 29	Not applicable

The REMOTE SYSTEM ATTRIBUTE display 13.5 is shown.

```
13.5                        REMOTE SYSTEM ATTRIBUTES          ILANLINE    W1

       Remote system IBMM3601

1. Remote adapter address  . . . . . . . . . . . . . . . . . .  400000000002

2. Destination service access point (DSAP) value . . . . . .  0C



 Cmd5-Restart CNFIGICF          Cmd7-End
 Cmd19-Cancel                                              COPR IBM Corp. 1990
```

Type the required parameter into the fields.

See Table 8.

1. Remote adapter address = First parameter
2. Destination Service Access Point (DSAP) = Second parameter
3. Press Enter.

Table 8. Remote System Attribute				
From/To	**OS/400 Machine**	**SSP Machine 1**	**SSP Machine 2**	**SSP Machine 3**
SSP Machine 1	23 35	Not applicable	25 37	26 38
SSP Machine 2	23 35	24 36	Not applicable	26 38
SSP Machine 3	23 35	24 36	25 37	Not applicable

Read this

If you have to define more remote systems that you want to access within your current SSP ILAN Configuration, **refer to** 4.3.7.3, “Create Several Remote System Configurations” on page 98.

When you have finished your Remote System definitions within your current SSP ILAN Configuration, your display should look similar to this:

```
 12.5                      REMOTE SYSTEM SELECTION             ILANLINE    W1

1. Select from the following options:
     1-Create     3-Create from existing            5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . .
2. Remote system name . . . . . . . . . . . . . . . . . . . . .
3. Existing remote system name  . . . . . . . . . . . . . . . .
--------------------------------------------------------------------------------
OPTION  REMOTE SYSTEM     OPTION  REMOTE SYSTEM      OPTION  REMOTE SYSTEM
          IBMM3602
          IBMM3603
          IM436M06



Cmd5-Restart CNFIGICF           Cmd7-End                 Cmd8-Reset
Cmd19-Cancel                                             COPR IBM Corp. 1986
```

Press F7.

Refer to 4.3.7.4, “Change Subsystem Member ILANSBS” on page 102.

4.3.7.4 Change Subsystem Member ILANSBS

The second step is to edit the SNA subsystem member on the current SSP Configuration.

The SSP-ICF CONFIGURATION MEMBER DEFINITION display 1.0 is shown.

```
 1.0          SSP-ICF CONFIGURATION MEMBER DEFINITION                    W1


1. Configuration member name  . . . . . . . . . . . . . . . . . .  ILANSBS

2. Library name . . . . . . . . . . . . . . . . . . . . . . . . .  #CNFGLIB

3. Select one of the following:
      1. Create new member
      2. Edit existing member
      3. Create new member from existing member
      4. Remove a member
      5. Review a member
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . 1-5  2




Cmd7-End     Cmd19-Cancel
```

Type the required parameters into the fields.

1. Configuration member name = **ILANSBS**
2. Option = 1
3. Press Enter.

The SSP-ICF CONFIGURATION MEMBER TYPE display 2.0 is shown.

```
 2.0              SSP-ICF CONFIGURATION MEMBER TYPE           ILANSBS     W1


Select one of the following options:
      1. Intra
      2. BSC
      3. SNA
      4. Async
      5. PC Support/36

   Option: 3


Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Type the required parameter into the field.

1. Option = 3
2. Press Enter.

The SNA CONFIGURATION MEMBER TYPE display 4.0 is shown.

```
 4.0                 SNA CONFIGURATION MEMBER TYPE             ILANSBS     W1

1. SNA member type  . . . . . . . . . . . . . . . . . . . . . 1-4  1
      1. SNA subsystem member
      2. SNA/SDLC line member
      3. SNA/X.25 line member
      4. SNA/IBM Token-Ring Network line member


Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Type the required parameters into the fields.

1. SNA type member = 1 = SNA subsystem member
2. Press Enter.

The SNA SUBSYSTEM MEMBER SELECTION display 21.0 is shown.

```
21.0             SNA SUBSYSTEM MEMBER SELECTION                ILANSBS     W1


1. Select subsystem type from the following options:
      1. Peer
      2. SNA Upline
      3. SNA 3270
      4. Finance
      5. SNA MSRJE
      6. APPC
      7. APPN
   Option . . . . . . . . . . . . . . . . . . . . . . . . . 1-7  6


2. Line member name . . . . . . . . . . . . . . . . . . . . . . ILANLINE

Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Type the required parameters into the fields.

1. Option = 6
2. Line Member Name = **17** or **18** or **19**
3. Press Enter.

The SNA SUBSYSTEM MEMBER DEFINITION display 22.0 is shown.

```
22.0              SUBSYSTEM MEMBER DEFINITION                 ILANSBS     W1

1. Local location name  . . . . . . . . . . . . . . . . . . . . IBMM3601




Cmd5-Restart CNFIGICF           Cmd7-End
Cmd19-Cancel                                            COPR IBM Corp. 1986
```

Type the required parameters into the fields.

Refer to Table 3 on page 76

1. Local Location Name = **6** or **7** or **8**
2. Press Enter.

The REMOTE LOCATION SELECTION display 29.0 is shown.

```
 29.0                    REMOTE LOCATION SELECTION            ILANSBS     W1

 1. Select from the following options:
      1-Create     3-Create from existing           5-Review
      2-Edit       4-Remove
    Option . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 1
 2. Remote location name . . . . . . . . . . . . . . . . . . . . . . . IBMM3602
 3. Remote system name . . . . . . . . . . . . . . . . . . . . . . . . IBMM3602
 4. Existing location name . . . . . . . . . . . . . . . . . . . . . . --------
-------------------------------------------------------------------------------
 OPTION   LOCATION     REMOTE SYSTEM                                Page  1  of  1
   -                     IBMM3602
   -                     IBMM3603
   -      IM436M06       IM436M06
   -
   -
   -
                                            Cmd5-Restart CNFIGICF
Cmd7-End     Cmd8-Reset     Cmd19-Cancel     Roll-Page    COPR IBM Corp. 1986
```

Note: You should see a display similar to this:

Type the required parameters into the fields.

Refer to Table 9 for the values.

1. Option = 1
2. Remote location
3. Remote system name
4. Press Enter.

Repeat the step until each Remote System has a corresponding LOCATION.

Table 9. Remote Location Selection

From/To	OS/400 Machine	SSP Machine 1	SSP Machine 2	SSP Machine 3
SSP Machine 1	**1** **5**	Not applicable	**3** **7**	**4** **8**
SSP Machine 2	**1** **5**	**2** **6**	Not applicable	**4** **8**
SSP Machine 3	**1** **5**	**2** **6**	**3** **7**	Not applicable

Read This

After you have finished, your display should look similar to this.

```
29.0                    REMOTE LOCATION SELECTION            ILANSBS     W1

1. Select from the following options:
     1-Create     3-Create from existing           5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . . . -
2. Remote location name . . . . . . . . . . . . . . . . . . . . --------
3. Remote system name . . . . . . . . . . . . . . . . . . . . . --------
4. Existing location name . . . . . . . . . . . . . . . . . . . --------
-------------------------------------------------------------------------------
OPTION   LOCATION     REMOTE SYSTEM                              Page  1  of  1
         IBMM3602       IBMM3602
         IBMM3603       IBMM3603
         IM436M06       IM436M06



                                            Cmd5-Restart CNFIGICF
Cmd7-End     Cmd8-Reset     Cmd19-Cancel    Roll-Page    COPR IBM Corp. 1986
```

1. Press F7.
2. Press F7.
3. Type OFF.

   This is optional. It signs off your SSP session. If you did Display Station Pass-Through, you are now back on the originating source system.

You have finished the Internal Local Area Network Configuration for your current SSP Machine.

If you need to configure an Internal Local Area Network for another SSP machine, **go back to** 4.3.7, “Create ILAN APPC Definition for SSP Machine” on page 95.

When your configuration for all operating system machines (″SSPs″) is complete, **refer to** 4.4, “How to Start and Maintain Internal Local Area Network” on page 107.

4.3.8 Matching Parameters OS/400 to SSP Machine

This topic provides reference figures for validating corresponding SSP Machine and OS/400 ILAN configurations for the up to three SSPs defined to run on the Model 436.

IM436M06 to IBMM3601 Connection

```
OS/400                                  SSP
Line member definition                  Line member definition
Not Applicable                                  Configuration Name = ILANLINE
                                                SNA member type = SNA IBM Token Ring
                                                APPN or APPC = Y
                                                XID = 00001
                                                SSAP = 08
                                                Remote System Name = IM436M06
                                                Remote System Type = PEER
                                                Remote System Block-ID = 056
                                                Remote System XID = 00000
                                                Remote System Adapter Address = 400000000000
                                                DSAP = 04
Controller definition                   Controller definition
CTLD=QILANM3601                                 Not Applicable
LINKTYPE=*ILAN
APPN(YES)
RMTCPNAME(IBMM3601)
EXCHID(03E00001)
DSAP(08)
SSAP(04)

Subsystem member definition             Subsystem member definition
Not Applicable                                  Configuration Name = ILANSBS
                                                Configuration Member Type = SNA
                                                SNA Subsystem Member Type = APPC
                                                Line Member Name = ILANLINE
                                                Local Location Name = IBMM3601
                                                Remote Location Name = IM436M06
                                                Remote System Name = IM436M06
```

Figure 43. IM436M06 - IBMM3601

IM436M06 to IBMM3602 Connection

```
OS/400                                  SSP
Line member definition                  Line member definition
Not Applicable                                  Configuration Name = ILANLINE
                                                SNA member type = SNA IBM Token Ring
                                                APPN or APPC = Y
                                                XID = 00002
                                                SSAP = 0C
                                                Remote System Name = IM436M06
                                                Remote System Type = PEER
                                                Remote System Block-ID = 056
                                                Remote System XID = 00000
                                                Remote System Adapter Address = 400000000000
                                                DSAP = 04
Controller definition                   Controller definition
CTLD=QILANM3602                                 Not Applicable
LINKTYPE=*ILAN
APPN(YES)
RMTCPNAME(IBMM3602)
EXCHID(03E00002)
DSAP(0C)
SSAP(04)

Subsystem member definition             Subsystem member definition
Not Applicable                                  Configuration Name = ILANSBS
                                                Configuration Member Type = SNA
                                                SNA Subsystem Member Type = APPC
                                                Line Member Name = ILANLINE
                                                Local Location Name = IBMM3602
                                                Remote Location Name = IM436M06
                                                Remote System Name = IM436M06
```

Figure 44. IM436M06 - IBMM3602

IM436M06 to IBMM3603 Connection

```
OS/400                                  SSP
Line member definition                  Line member definition
Not Applicable                                  Configuration Name = ILANLINE
                                                SNA member type = SNA IBM Token Ring
                                                APPN or APPC = Y
                                                XID = 00003
                                                SSAP = 10
                                                Remote System Name = IM436M06
                                                Remote System Type = PEER
                                                Remote System Block-ID = 056
                                                Remote System XID = 00000
                                                Remote System Adapter Address = 400000000000
                                                DSAP = 04
Controller definition                   Controller definition
CTLD=QILANM3603                                 Not Applicable
LINKTYPE=*ILAN
APPN(YES)
RMTCPNAME(IBMM3603)
EXCHID(03E00003)
DSAP(10)
SSAP(04)

Subsystem member definition             Subsystem member definition
Not Applicable                                  Configuration Name = ILANSBS
                                                Configuration Member Type = SNA
                                                SNA Subsystem Member Type = APPC
                                                Line Member Name = ILANLINE
                                                Local Location Name = IBMM3603
                                                Remote Location Name = IM436M06
                                                Remote System Name = IM436M06
```

Figure 45. IM436M06 - IBMM3603

4.4 How to Start and Maintain Internal Local Area Network

After you have finished your configuration, you can ″start″ the ILAN configuration on both the OS/400 and the appropriate SSP machine.

On the OS/400, you have to successfully vary on the control unit and associated device description that represents the ICF configuration in the desired SSP.

On the SSP, you have to enable the ICF line member and subsystem member that represents the OS/400 or another SSP.

4.4.1 Starting ILAN on OS/400

There are several ways to activate the OS/400 controllers that represent the SSP machines (SSP ICF configurations):

1. Automatically after IPL if the control unit description and device description specifies ONLINE(*YES):

   ```
   CRTCTLAPPC CTLD(QLANM3601) ... ONLINE(*YES)
   or
   CHGCTLAPPC CTLD(QLANM3601) ... ONLINE(*YES)

   CRTDEVAPPC CTLD(QLANM3601) ... ONLINE(*YES)
   or
   CHGDEVAPPC CTLD(QLANM3601) ... ONLINE(*YES)
   ```

2. Manually by using the WRKCFGSTS command:

   ```
   WRKCFGSTS CFGTYPE(*CTL) ... CFGD(QLANM3601)
   ```

3. Manually by using the VRYCFG command:

   ```
   VRYCFG CFGOBJ(QLANM3601) CRGTYPE(*CTL) STATUS(*ON)
   ```

4.4.1.1 Work With Configuration Status Command

The Work with Configuration Status (WRKCFGSTS) command is used to display and to work with configuration status functions. When you run this command, the Work with Configuration Status display is shown. The WRKCFGSTS command is an OS/400 command that provides a menu to do the following functions:

1. Vary on the controller = Option 1.
2. Vary off the controller = Option 2.
3. Change the Configuration of the controller = Option 8.

To look at the Status of your ILAN APPC Controllers, use the following:

1. Sign on to OS/400.
2. Type WRKCFGSTS CFGTYPE(*CTL) CFGD(QILAN*) OUTPUT(*).
3. Press Enter.

The Work with Configuration Status display is shown.

```
                        Work with Configuration Status                IM436M06
                                                            08/17/95  10:30:03
 Position to  . . . . .               Starting characters

 Type options, press Enter.
   1=Vary on   2=Vary off   5=Work with job   8=Work with description
   9=Display mode status ...

 Opt  Description       Status                -------------Job--------------
 __   QILANM3601        ACTIVE
 __     IBMM3601        ACTIVE
 __   QILANM3602        VARY ON PENDING
 __     IBMM3602        VARY ON PENDING
 __   QILANM3603        ACTIVE
 __     IBMM3603        ACTIVE
 __       BLANK         ACTIVE/TARGET         IBMM360300  QUSER       003574


                                                                         Bottom
 Parameters or command
 ===>
 F3=Exit   F4=Prompt   F12=Cancel   F23=More options   F24=More keys
```

Figure 46. OS/400 Display Network Attributes Example

Figure 46 shows status information for network servers, network interfaces, lines, controllers, and devices. Also, job identification information is shown for active devices. All information displayed may instead be printed by specifying OUTPUT(*PRINT).

Device names are indented under the associated controller name, for example, device IBM3601 is associated with controller QILANM3601. Active APPC conversations are indicated by an indented APPC mode name (SSP session group) under the associated APPC device description.

For this ILAN example, the controller and associated device is shown for each of three SSP machines. (Remember for OS/400 there is no ″ILAN line description″.)

The OS/400 ″vary on″ has been issued to each controller and associated device description that represents the corresponding SSP machine ICF subsystem member.

For QLANM3601, ″ACTIVE″ indicates the corresponding SSP machine line member and subsystem member that specifies IM436M06 has been ENABLED.

For QLANM3602, ″VARY ON PENDING″ indicates the corresponding SSP SSP machine line member and subsystem member that specifies IM43606 has not been enabled successfully.

For QLANM3603, ″ACTIVE″ and an AS/400 job name (IBMM3601/QUSER/003574) means the corresponding SSP machine line member and subsystem member that specifies IM43606 has been enabled and there is one *active APPC conversation* using APPC mode (SSP session group) named BLANK. ″TARGET″ means the APPC conversation was initiated from the SSP machine. One of the following - Display Station Pass-Through, DDM, a user-written APPC program, or a SNADS function was initiated from the SSP.

STATUS definitions for the controller

Status	Description of the Status
Active	The network server, network interface, line, controller, or device is in use. This is the status you should see; it indicates that your *ILAN is operational.
Failed	The network server, network interface, line, controller, or device is not usable. The object should be varied off and varied on again.
Rcypnd	Error recovery is pending for the network interface, line, controller, or device.
Varied off	The network server, network interface, line, controller, or device is varied off.
Varied on	The network server, network interface, line, controller, or device is varied on.
Vary on pending	The network server, network interface, line, controller, or device is in the process of being varied on.
Vary off pending	The network server, network interface, line, controller, or device is in the process of being varied off.

4.4.1.2 Other Controller Related Commands

VRYCFG: The Vary Configuration (VRYCFG) command varies on or off one or more configuration objects with the capability of also varying on the downline attached configuration objects. The VRYCFG command also optionally resets the input/output processor (IOP) associated with the specified object.

The configuration objects that can be varied on or off are network server, network interfaces, lines, controllers, and devices. This command applies to all network interfaces, lines, controllers, and devices on the system.

ENDCTLRCY: The End Controller Recovery (ENDCTLRCY) command ends automatic error recovery procedures for a specific controller. If any type of failure occurs after this command is run, an inquiry message is sent to the system operator.

RSMCTLRCY: The Resume Controller Recovery (RSMCTLRCY) command resumes error recovery procedures for a specific controller. Error recovery procedures can be ended by using the End Controller Recovery (ENDCTLRCY) command or by responding to a failure-related inquiry message with a cancel option.

The Resume Controller Recovery (RSMCTLRCY) command allows you to resume automatic error recovery procedures after they have been stopped, and to reactivate a controller (and jobs using that controller) after it has been canceled.

DLTCTLD: The Delete Controller Description (DLTCTLD) command deletes the specified controller description. A controller description must be varied offline before this command is issued to delete it.

DSPCTLD The Display Controller Description (DSPCTLD) command displays a controller description.

WRKCTLD: The Work with Controller Descriptions (WRKCTLD) command allows you to work with controller description functions through the Work with Controller Descriptions display.

4.4.2 Starting ILAN for an SSP

You can startup (″enable″) your SSP ILAN configuration manually or automatically.

You should not have any problem running your ILAN functions after you have set up your configuration. There should be no need to look at the ILAN status if you use **Automatic Start.** The following procedure is used to start the Internal Local Area Network Communication functions and you can use our example to automate your ILAN Start.

ENABLE Procedure: The ENABLE procedure starts the Interactive Communications Feature (SSP-ICF) definition representing the OS/400 remote system and any additionally defined remote SSPs. It must be run before a subsystem can be used.

Note

Internal Local Area Network uses **Line Number 15** which is a virtual line number.

Manual Start: To start your ILAN on your SSP machine, type:

```
ENABLE ILANSBS,#CNFGLIB,15
```

Automatic Start #STRTUP2: If you do not have a #STRTUP2 Procedure yet, you have to create one in the #LIBRARY Library. You can use POP to edit or create the #STRTUP2 Source. The selected procedure then executes after the SSP IPL has been initiated **and** after the users are allowed to sign on.

Sign on to the SSP machine.

The SSP Main menu is shown.

```
                                   MAIN                                  W1

                           Main System/36 help menu

 Select one of the following:

    1. Display a user menu
    2. Perform general system activities
    3. Use and control printers, diskettes, or tape
    4. Work with files, libraries, or folders
    5. Use programming languages and utilities
    6. Communicate with another system or user
    7. Define the system and its users
    8. Use problem determination and service
    9. Use office products
   10. Sign off the system


 Cmd3-Previous menu   Cmd7-End     Cmd12-How to use help     Home-Sign on menu

 Ready for option number or command
  POP

                                                            COPR IBM Corp. 1990
```

Do the following.

1. Type POP.
2. Press Enter.

The POP Main Menu display is shown.

```
 COMMAND                     S Y S T E M / 3 6                          W1
                 P R O G R A M M E R   A N D   O P E R A T O R
                      P R O D U C T I V I T Y   A I D

 Libraries         1.  Display list of all libraries.
                   2.  Display members in current library.
                   3.  Prompt for name of library to display.

 Files             4.  Display list of all data files.
                   5.  Prompt for name of file to display.

 Diskettes         6.  Display list of files in Slot 1.
                   7.  Display list of files in Magazine 1.
                   8.  Prompt for location of diskette to display.

 Editor            9.  Create or edit a source or procedure member.
                  10.  Print a source or procedure member.

 Tutorial         11.  Display tutorial

 Ready for option number or command                       Cmd 3-Previous menu
  9

                                                            (c) 1986 IBM Corp.
```

1. Type 9.
2. Press Enter.

The System/36 Full Screen Editor Member Selection display is shown.

```
                        System/36 Full Screen Editor
                              Member Selection


 Member Name .......... #STRTUP2   (Blank For Member List)

 Member Type .......... P          (P-Proc,S-Source,R-RPG,C-COBOL,A-ASM)
                                   (V-FORTRAN,F-SFGR,T-Text)
 Library Name ......... #LIBRARY




                  Press COMMAND KEY 7 to CANCEL FSEDIT
                  Press HELP KEY to Display Help Text
```

Type the required parameters into the fields.

1. Member Name = #STRTUP2
2. Member Type = P
3. Libray Name = #LIBRARY
4. Press Enter.

The full screen editor display is shown which allows you to edit the member.

```
  #STRTUP2  P  #LIBRARY  120  UPPER   1-79   FMT01  00001 OF 00001     *
                                                  :
ENABLE ILANSBS,#CNFGLIB,15









******************************** END OF DATA ********************************
```

Do the following:

1. Type **ENABLE ILANSBS,#CNFGLIB,15** in the first line.
2. Press F7.

The POP Procedure Replacement Options display is shown.

```
                        System/36 Full Screen Editor
                        Procedure Replacement Options


Log OCL Statements? ......... N        (Y/N)      Press: ENTER KEY to
 Program Data? ............... N        (Y/N)             REPLACE Member
 MRT Procedure? .............. N        (Y/N)
                                                          COMMAND KEY 1 to
Print Member? ................ N        (Y/N)             RETURN to Editor
 Printer ID .................. P1       (ID/SYSTEM)
 Lines Per Page .............. 66       (1 to 112)        COMMAND KEY 19 to
 Lines Per Inch .............. 6        (4/6/8)           CANCEL FSEDIT
 Characters Per Inch ......... 10       (10/15)
 Number of Copies ............ 1        (1 to 99)


Serialize Member? ............ N        (Y/N)
 Starting Column Number ...... 73
 Length ...................... 8        (4 to 8)

New Member Name .............. #STRTUP2
 New Library Name ............ #LIBRARY
 New Record Length ........... 120      (40 to 120)
```

Press Enter.

Press F3 to leave POP.

Now your Internal Local Area Network is automatically started whenever you start your SSP machine on the OS/400. #STARTUP2 is initiated after the SSP IPL is complete.

Note: Refer to 4.3.6, “Starting an SSP Machine” on page 94 to see how to automatically start the SSP machine from OS/400 IPL.

4.4.3 SUBSYSTEM STATUS

On the SSP MAIN menu command line, type **D I** (″display ICF subsystem status″) to view the status of your ILAN subsystem.

```
                                    MAIN                                  W1

                            Main System/36 help menu

  Select one of the following:

     1. Display a user menu
     2. Perform general system activities
     3. Use and control printers, diskettes, or tape
     4. Work with files, libraries, or folders
     5. Use programming languages and utilities
     6. Communicate with another system or user
     7. Define the system and its users
     8. Use problem determination and service
     9. Use office products
    10. Sign off the system


  Cmd3-Previous menu   Cmd7-End     Cmd12-How to use help     Home-Sign on menu

  Ready for option number or command
   D I

                                                            COPR IBM Corp. 1990
```

The SUBSYSTEM STATUS display is shown.

```
                              SUBSYSTEM STATUS                              W1

CONFIG   CONFIG    LINE  LOCATION   STATUS       COMMUNI-   --NO. OF SESSIONS--
NAME     TYPE            NAME                    CATING     EVOKED     ACQUIRED
ILANSBS  APPC       15   IBMM3602  Enabled          Y        ---          ---
                         IBMM3603  Enabled          Y        ---          ---
                         IM436M06  Enabled          Y        ---          ---




  Cmd7-End      Cmd8-Help     Cmd15-Update      Cmd16-Restart      Roll-Page
--------------------------------------------------------------------------------
                                     CNTLLINE
                         Start or stop communication lines
    1. Start a subsystem
    2. Stop a subsystem                 6. Control APPC
    3. Start monitoring a BSC line      7. Control alert support
    4. Stop monitoring a BSC line

 Ready for option number or command


                                                          COPR IBM Corp. 1985
```

You have now completed configuring the definitions to connect your OS/400 with up to three SSP machines.

4.4.4 Disabling Your ILAN Subsystem

When you want to shut down the ILAN connection within your Model 436, you should use the SSP DISABLE procedure:

```
DISABLE ILANSBS
```

You can do this, change your ILAN subsytem member configuration and then re-ENABLE the ILAN subsystem.

When you want to shutdown (power off) an active SSP machine, you should first disable ILANSBS before issuing the SSP POWER procedure. If you do not do this, you may have problems the next time you want to begin communicating with an SSP on the Model 436.

See the next topic for additional information.

4.4.5 Possible Internal Local Area Network Problems

In most cases, if you use the example SSP ICF line member and subsystem member local system, remote system names, and the OS/400 APPC control unit descriptions, you should not have a problem activating the ILAN configuration on either the SSP machine side or the OS/400.

However, this section provides tips on resolving problems with the ILAN setup. ILAN problems can be exhibited in the following ways:

- On SSP, the D I display shows ILANSBS ″Enabled″ but ″N″ (no) under ″COMMUNICATING″ for the corresponding LOCATION NAME.
- On OS/400, the WRKCFGSTS *CTL display shows ″VARIED OFF″ or ″VARY ON PENDING″ for the APPC control unit or device description that corresponds to an ICF subsystem in the appropriate SSP machine.
- Functions such as Display Station Pass-Through fail.

The following actions can be used to resolve the problem:

- On OS/400, verify that the appropriate SSP machine has been started.

  Use the OS/400 WRKM36 command for the appropriate SSP machine and examine the ″Status″ field for ″Started″.

  If the SSP has not been started, issue the STRM36 command.

- On the started SSP, use D I.

  If D I indicates ″COMMUNICATING - N″ for the other started SSP, or the coexisting OS/400 location names, **or** OS/400 WRKCFGSTS *CTL QLANM36nn status shows a value other than ACTIVE:

  – Do an SSP DISABLE-ENABLE sequence for the SSP configuration names.

  – Check to see if the OS/400 has the corresponding APPC control unit descriptions (QILANM36nn) in the ACTIVE status. If not, do a Vary off, then Vary on of the controller and device. Use F5=Refresh for up to 30 seconds to see if the status changes to ACTIVE.

    If OS/400 WRKCFGSTS does not become active, ensure that the appropriate SSP machine has been started. Then ensure that the corresponding ICF subsystem ILANSBS has been enabled.

    When you create your OS/400 ILAN APPC controller, you can define that the controller is activated at IPL time. The parameter **ONLINE(*YES)** is the default and is the recommended value for working with the Internal Local Area Network. The controller and associated device remain at ″VARY ON PENDING″ until the SSP subsystem member is enabled.

- If the previous actions fail to get the SSP and OS/400 ″communicating″, then you may have misnamed the control point, local location name, or remote location name, or forgot to start the appropriate SSP machine.

  – On SSP, type CNFIGICF and review the display contents.

  – On OS/400, do DSPNETA for the OS/400 names and DSPCTLD QILANM36nn for location names.

  – Verify that the control point, local location, remote location, and remote system names are appropriate.

  – Verify OS/400 autoconfigure device setting:

    Check the QAUTOCFG system value on the OS/400. The value should be 1=ON when you start your first connection. After the connection is successfully completed, you may leave the value ON or change it to OFF (0).

    ON means new local workstations are automatically configured when connected to the system.

  – Verify OS/400 autoconfigure of remote controllers:

    Check the QAUTORMT system value on the OS/400. The value should be 1=ON when you start your first connection. After the connection is successfully completed, you may leave the value ON or change it to OFF (0).

    ON means new remote workstations are automatically configured when connected to the system. 1=ON when you start your first connection. After the connection is successfully completed, change the value back to 0=OFF.

– Verify OS/400 autoconfigure virtual devices:

  Check the QAUTOVRT system value on the OS/400. The value should be greater than 0 to automatically configure virtual devices. This specifies the number of virtual devices to automatically configure.

  OS/400 virtual devices are used for Display Station Pass-Through, Client Access/400 5250 emulation, OS/2 5250 emulation, and other OS/400 communications-based functions.

Note: Be aware of the following security consideration with this system value. The number of OS/400 Signon attempts allowed at remote devices increases when QAUTOVRT is greater than 0. The number of attempts allowed through pass-through is QAUTOVRT multiplied by the maximum number of Signon attempts (the system value QMAXSIGN). A change to this system value takes effect immediately. The shipped value is 0.

Important SSP Machine DISABLE Function

It is very important to DISABLE communications within an SSP machine before you ″power down″ or end each active SSP machine. If you forget to do this or are unable to do this, you may have problems the next time communications is attempted between and SSP and OS/400. If you have such a problem, ensure the appropriate SSP is active and:

- On OS/400, vary off and then on the APPC controller description (for example, VRYCFG QILANM3601 *CTL *ON).
- On the SSP, DISABLE ILANSBS and then ENABLE ILANSBS, #CFGLIB, 15.

Part 3. Service Options

IBM offers a wide range of AS/400 product line service offerings and serviceability aids world wide. This part provides a summary of fee-based service offerings and discusses how to use system defect-oriented serviceability aids. An example showing how to electronically order, load and apply an SSP Program Temporary Fix (PTF) is provided.

This part contains the following chapter:

Chapter 5, “Service and Support” on page 119

Note: Not all service offerings listed may be available in your country. For specific details, contact your IBM representative or your local IBM Direct number.

Chapter 5. Service and Support

5.1 Fee-Based Service Offerings

The following topics provide an overview of AS/400 fee-based service offerings.

5.1.1 AS/400 Support Line

The support line provides telephone support for operational usage and code-related problems. You receive a call back within two hours during the prime-time shift. Resolution is normally completed with one or two dialogues between IBM and the customer.

5.1.2 AS/400 Alert

Weekly notification through fax or mail of the latest critical software fixes (HIPER PTFs) and PTFs in error (PEs) is available for the customer's specific AS/400 environment.

5.1.3 AS/400 Associate

Remote specialist service are available as the customer advocate and single point-of-contact for system problems.

5.1.4 AS/400 Consult Line

Access to experts is available through a 1-800 teleconference for remote consultation and evaluation on complex AS/400 issues. Consult Line is for situations that take longer to close than an AS/400 Support Line call. For example, Support Line identifies which of several system functions to use to satisfy a customer need. The customer decides to use this function but needs help in creating definitions, running functions, and interpreting function output. They use Consult Line to do most or all of the research and actual definition.

5.1.5 AS/400 Forum

An AS/400-based bulletin board is available to exchange ideas and download tools.

5.1.6 AS/400 Advanced 36 On-Line Forum

An on-line forum is available to allow anyone involved in marketing, installation, and support of AS/400 Advanced 36 to ask questions and exchange information on any topic related to AS/400 Advanced 36. Topics can include success stories, questions, problems, solutions, or anything else that is helpful to other forum participants. AS/400 Advanced 36 developers also monitor this forum and participate when possible.

The Advanced 36 forum is accessible through the IBMLINK application TALKLINK. Anyone who has access to IBMLINK can preview the Advanced 36 forum in a read only mode. However, to participate in forum discussions, TALKLINK registration is required. To register for TALKLINK on-line, select MARTLINK on the main IBMLINK menu, and then select TALKLINK. For more information about TALKLINK in the U.S., call 1-800-547-1283. There is a small monthly charge for TALKLINK access. IBMLINK and TALKLINK can also be accessed on the Internet at "http://www.ibmlink.ibm.com/".

5.2 System Serviceability Aids

The following topics describe software defect oriented serviceability aids available either under the System Licensed Internal Code (SLIC), OS/400 or SSP M36 Machine.

5.2.1 AS/400 Dedicated Service Tools

Dedicated Service Tools (DST) is used to service Licensed Internal Code (LIC), work with disk units, work with configuration and resources, verify devices and communications, and display system logs.

The system operator may use DST to install Licensed Internal Code, to apply PTFs to the Licensed Internal Code, and to back it up to tape with all currently applied PTFs. The backup tape can be used to restore the Licensed Internal Code after a failure.

The functions supported depends on how DST is accessed. DST operates in a stand-alone (alternate IPL to DST), limited (IPL to DST), and full paging environment (normal system operations).

The following functions are available:

Table 10. Dedicated Service Tools Functions

	Stand-Alone Environment	**Limited Environment**	**Paging Environment**
Perform an IPL.		X	X
Install the operating system.		X	X
Install Licensed Internal Code.	X	X	X
Work with disk units.	X	X	X
Work with DST environment.	X	X	X
Start a service tool.	X	X	X
Work with remote DST support.	X	X	X
Select DST console mode.			X
Resume operating system display.			X
Perform automatic installation of the operating system.		X	X
Save Licensed Internal Code.		X	X
Select DST console mode.		X	
Work with save storage and restore storage.		X	

Note:

1. In many cases, the DST options should be run only through the cooperation of an IBM service representative. Once you have learned what the option does and how to perform the necessary steps, you may be directed to perform the option yourself. For example, ″Start a service tool″ has an option to perform a communication line trace. Once you have been instructed on specific detail options and how to read the trace output, you may perform the communication trace yourself.
2. Remote DST uses the same modem and communications line as used by Electronic Customer Support (ECS). Therefore, ECS functions are not available

while Remote DST service is active. When OS/400 is operational, support personnel normally connect through a remote session and use Start Service Tools (SST) functions, which are a powerful subset of DST capabilities.

For more information, refer to the *AS/400 Service Functions* book (System Service Tools – DST subset).

5.2.2 SSP Main Storage Display Alter (MSDA)

MSDA enables the display, print and altering of storage. It is a tool used by SSP service personnel to assist in the isolation of suspected SSP coding errors.

The CHGSYSVL command can be used to set a MSDA password. If this is not done, then no password is required to initiate the MSDA facility.

MSDA is initiated at the system console by:

1. Pressing the SYSREQ key and then the ENTER key. This causes a set of underlines to be presented at the bottom of the display.
2. Type S36 and press the ENTER key. Make sure the S is uppercase.

   The MSDA main menu is presented. The following selections are available:
   - Alter (A)
   - Display (D)
   - Print (P)
   - Dump (U)
   - Control Block (C)
   - Offset (O)
   - Stop (S)
   - Trace (T)
   - Help (H)
   - Exit (X)

   Typing the command followed by the letter H results in help text being presented for that command (for example, aH, dH, pH....).

To end the MSDA facility, just type an X and press the Enter key. You are returned to the display from where you initiated the MSDA function.

5.2.3 Remote Support Tool

AS/400 Remote Access Support is an application program that runs on a personal computer (PC). The program communicates with an AS/400 business computing system through a direct (local) connection to the Service and Manufacturing Interface (SAMI) port or through a remote connection to the ECS modem using an asynchronous modem.

AS/400 Remote Access Support for OS/2 provides the following functions for customers and for service providers:

1. Control panel operations over the local and remote interfaces.
2. Easy to use Graphical User Interface (GUI).
3. Remote 5250 emulation for Dedicated Service Tools (DST) operations.
4. Error and event history logging and display support.
5. Problem reporting to an IBM Service Support system or to an AS/400 system running System Manager for OS/400 (SM/400, Program Number 5716-SM1).

This remote access support may be used for failure scenarios where the AS/400 system is disabled and cannot use the normal ECS reporting path.

Note: Refer to PRPQ P84254 for a detailed description.

5.2.4 OS/400 Electronic Customer Support

AS/400 Electronic Customer Support (ECS) is available to AS/400 Advanced 36 when OS/400 is also installed on the same system. It provides an integrated set of service and support functions to assist user self-sufficiency.

ECS is a set of applications that interfaces with standard communication facilities for access to remote support systems. These can be customer, IBM, or IBM Business Associate remote systems. ECS provides online and remote technical support. Electronic hardware and software service support is also provided through the ECS link.

Should a system hardware or software problem arise, IBM Remote Support Specialists can access the AS/400 system directly through a telephone line. This assists in rapid problem determination and solution. Corrections to software (program temporary fixes (PTFs)) can be distributed electronically.

An EIA 232/V.24 communications line (required for ECS) is shipped with each AS/400 Advanced 36. In addition, a modem, a chargeable item, is required. A 9600 bps modem (such as IBM 7855 or IBM 7857, or equivalent) is recommended. The same communications line and modem can also be used for Remote DST and Remote Control Panel. These functions are supported by using the 5799-FPH PRPQ, Remote Access Support for OS/2, which runs on remote PCs with OS/2.

5.2.5 Program Temporary Fixes (PTFs)

The AS/400 software maintenance strategy consists of **preventative service** and **corrective service**.

5.2.5.1 Preventative Service

Preventative service involves avoiding problems already found and fixed, compared to merely encountering a problem and then determining if it is a new problem or one with a PTF already available. **Cumulative PTF Packages** are used to perform preventative service.

Cumulative PTF Packages: There are two types of cumulative PTF packages for the Model 436.

- For those who do **not** have OS/400 installed:

  This type contains PTFs for the System Licensed Internal Code, SSP, and SSP LPPs (Licensed Program Products). It is often referred to as **U599**rrm, where *rrm* is the release and modification level of SSP. This type is built to be copied and applied by SSP with no intervention by OS/400.

- For those who **do** have OS/400 installed:

  This type contains PTFs for the Licensed Internal Code, SSP, SSP LPPs, OS/400, and OS/400 LPPs. It is often referred to as **SF99**vrm, where *vrm* is the version, release, and modification level of OS/400. This type is built especially to:

  – Enable OS/400 to load and apply Licensed Internal Code (LIC), OS/400, and OS/400 LPP PTFs.

– Enable SSP to copy and apply the SSP and SSP LPP PTFs.

In this redbook, this is the type of PTFs we discuss.

Cumulative PTF packages contain most of the PTFs from the previous cumulative PTF package and new preventative PTFs made available since that previous cumulative PTF package. A cumulative PTF package does **not contain all preventative PTFs since the previous cumulative PTF package was built.** A preventative PTF is included in a cumulative PTF package only after extensive testing has completed and it does not require special handling by the customer.

In general, it is recommended that a Cumulative PTF package be installed on your system every three to four months, assuming a small number of software problems are encountered during that time period.

If you have a service offering contract you may order a Cumulative PTF package by telephoning your service provider. Whether you have a service contract or not, you may also order a Cumulative PTF package (or a corrective PTF as described under "Corrective Service PTFs") through one of the following methods:

- ECS
- Mail to your service provider address
- Sending a request through facsimile (fax)

See 5.2.5.3, "Ordering PTFs" on page 126 for more details on ordering PTFs.

The Cumulative PTF package is mailed to you either on a CD-ROM or a tape cartridge.

5.2.5.2 Corrective Service

Corrective service corrects problems you report to IBM service support as they are encountered. If you have a problem with SSP, SSP features, or SSP LPPs, you should use the *System Problem Determination-SSP* book, SC21-8296, to help in problem determination.

In general, if you determine a possible problem with IBM software, you can report the problem to IBM service either with the telephone or through the OS/400 Electronic Customer Support (ECS) communication capabilities.

Corrective Service PTFs: When using this process, a PTF is made available to you electronically with ECS support or through direct mailing of either a cumulative PTF package on a CD-ROM, or a cumulative PTF package on a tape cartridge.

Before reporting a software problem, ordering a cumulative PTF package, or ordering a specific PTF, it is recommended that you understand which cumulative PTF package is already on your system and which other PTFs are already on your system. AS/400 manufacturing installs the latest cumulative PTF package that is available at the time of manufacture on all preloaded AS/400 Advanced 36 systems. Users can determine which cumulative PTF package level has been applied by executing one of the following commands on either the SSP side or the OS/400 side of a Model 436:

- **SSP DSPSYS**

```
                          DISPLAY SYSTEM STATUS          4/19/96  16:27  #1

Model       CPU Serial         Release     PTF       Disk Capacity
436 /2102   SN/103FB4A           7.5      C6086       207 MB    81101 B
GUEST      000                                       5.05 GB TOTAL
Main Storage              Task Work Area             Disk Use
  128 MB TOTAL            6553 TOTAL BLOCKS                3 OPERATIONS
 6380 KB AVAILABLE           8 PERCENT USED                3 BY  #1171434
  192 KB NUCLEUS             1 EXTENTS                     3 IMMEDIATE
                                                           3 BY  #1171434
                       Critical System Resources Locked
DEDICATE SCHEDULE VTOC    FORMAT-5 SPOOL    MESSAGES PROCNAME JOBQUEUE HISTORY
  --       --       --       --       --       --       --       --

Processor Utilization       Percentage within 10 second interval
                        1    2    3    4    5    6    7    8    9   10
                    ....0....0....0....0....0....0....0....0....0....0
 MSP Emulation
 System Tasks
 #1171434
 00B5  - C/SNA
 0009  - Cmd Proc
```

Under the **PTF** heading, you can see the latest cumulative PTF level. In this case, it is ″C6086″. ″C6″ stands for cumulative **96** package and ″086″ stands for day 86 of 1996.

- **SSP PTF LIST,,CRT**

  Figure 47 shows the initial display for the SSP PTF LIST display output.

```
                          S/36 PTF LOG DUMP                        #1

        Library:-- #LIBRARY   C6086


          0 $CHGSYS   15222
          0 $FEDKL    15237  15235  15229  15220
          0 $IEDS     15206
          0 $IENBL    15234
          0 $SMFDT    15231
          0 $SMFLG    15232  15231
          0 #AHIH     15204  15223
          0 #AHTR     15204
          0 #AYAX     15205
          0 #AYEX     15204
          0 #AYML     15205
          0 #AYPM     15204
          0 #CAD2     15213
          0 #CAMG     15213
          0 #CAPT     15213
          0 #CH01     15221

 Cmd7-End   Roll keys-Page PTF log
```

Figure 47. SSP PTF LIST,,CRT Display

Next to **# Library**, you can see the cumulative PTF package level number as previously described. You can also see the list of PTFs applied to the SSP modules, for example, $CHGSYS.

- **OS/400 DSPPTF**

  The following display examples show results from the OS/400 command DSPPTF for the System Licensed Internal Code (SLIC) - 5716-999:

```
DSPPTF LICPGM(5716999) SELECT(*ALL) RLS(*ALL) COVERONLY(*NO)
```

Figure 48 on page 125 shows the first display of PTF status for 5716999, the System Licensed Internal Code (SLIC). PTF ID of TLyynnn indicates that a

cumulative tape was applied where yy is the year applied and nnn is the sequenced number day of the year. For example, 044 is February 13, 1996. ″Temporarily applied″ or ″Permanently applied″ means the PTF is active on the system and has not been ″superseded″ (obsoleted) by a subsequent PTF.

```
                              Display PTF Status
                                                                 System:   IM436M05
Product ID  . . . . . . :   5716999
IPL source  . . . . . . :   ##MACH#B
Release . . . . . . . . :   V3R6M0
Type options, press Enter.
  5=Display PTF details   6=Print cover letter   8=Display cover letter
     PTF                                                        IPL
Opt  ID       Status                                          Action
__   TL96044  Temporarily applied                             None
__   TL96031  Superseded                                      None
__   TL96023  Superseded                                      None
__   TL96009  Permanently applied                             None
__   TL96002  Superseded                                      None
__   TL95346  Superseded                                      None
__   TL95325  Superseded                                      None
__   RE95349  Permanently applied                             None
__   MF11380  Temporarily applied                             None
                                                                          More...
F3=Exit   F11=Display alternate view   F12=Cancel
```

Figure 48. OS/400 Display PTF Example 1 of 4

PTFs have associated cover letters. Cover letters describe the problem being corrected and optionally provide special install instructions.

MFnnnnn is the number of a specific SLIC PTF. Figure 49 shows another display under DSPPTF. (If DSPPTF LICPGM(5716SS1) had been specified, SFnnnnn would be a specific OS/400 PTF.)

```
                              Display PTF Status
                                                                 System:   IM436M05
Product ID  . . . . . . :   5716999
IPL source  . . . . . . :   ##MACH#B
Release . . . . . . . . :   V3R6M0
Type options, press Enter.
  5=Display PTF details   6=Print cover letter   8=Display cover letter
     PTF                                                        IPL
Opt  ID       Status                                          Action
__   MF11359  Superseded                                      None
__   MF11354  Temporarily applied                             None
__   MF11353  Temporarily applied                             None
__   MF11352  Temporarily applied                             None
5_   MF11342  Temporarily applied                             None
__   MF11341  Temporarily applied                             None
__   MF11339  Temporarily applied                             None
__   MF11337  Temporarily applied                             None
__   MF11336  Temporarily applied                             None
                                                                          More...
F3=Exit   F11=Display alternate view   F12=Cancel
```

Figure 49. OS/400 Display PTF Example 2 of 4

This figure provides a summary of the PTFs and includes information such as the status and type of PTF, if the PTF can be applied immediately, or only upon the next IPL and if a cover letter exists.

Option 5, display, leads to the menu shown in Figure 50 on page 126. We selected option 1, General information for PTF MF11342. Figure 51 on page 126 shows the general information for this PTF.

```
                              Display PTF Details
Product ID/PTF ID  . . . . . . . . . . :   5716999  MF11342
Release  . . . . . . . . . . . . . . . :   V3R6M0
Select one of the following:
     1. General information
     2. Prerequisite PTFs
     4. Superseded PTFs
     6. PTF Objects
     7. Symptom strings
     9. APARs fixed
    20. All of the above
                                                                        Bottom
Selection
     _1_

F3=Exit   F12=Cancel
```

Figure 50. OS/400 Display PTF Example 3 of 4

```
                              General information
Product ID/PTF ID  . . . . . . . . . . :   5716999  MF11342
Release  . . . . . . . . . . . . . . . :   V3R6M0
On order . . . . . . . . . . . . . . . :   No
PTF save file  . . . . . . . . . . . . :   No
PTF status . . . . . . . . . . . . . . :   Temporarily applied
Status date/time . . . . . . . . . . . :   03/02/96  11:12:57
Type . . . . . . . . . . . . . . . . . :   Delayed
Unattended IPL action  . . . . . . . . :   None
Optional part  . . . . . . . . . . . . :   *BASE
PTF library  . . . . . . . . . . . . . :   QGPL
Cover letter . . . . . . . . . . . . . :   No
Mandatory instructions . . . . . . . . :   No
Test Fix . . . . . . . . . . . . . . . :   No
Action pending . . . . . . . . . . . . :   No
Action required  . . . . . . . . . . . :   No
                                                                      More...
Press Enter to continue
F3=Exit   F12=Cancel
```

Figure 51. OS/400 Display PTF Example 4 of 4

DSPPTF general information also shows what library the PTF was placed in for the purpose of housekeeping and if the OS/400 user wants to save and restore onto another OS/400 system. If SystemView System Manager/400 is installed, this PTF can be automatically sent and applied on another AS/400 system.

5.2.5.3 Ordering PTFs

AS/400 Advanced 36 customers should periodically order, copy, and apply preventive PTFs.

Preventative and Corrective PTFs can be ordered by:

- Contacting your service provider and asking for the latest AS/400 Advanced 36 Cumulative PTF package.

  To place an order for the latest preventive PTF tape if you have an AS/400 Advanced 36 Support Line contract in the U.S., call 1-800-274-0015. When calling, indicate that the latest Advanced 36 PTF tape is being requested and an administrator will handle your request.

- If you do not have an AS/400 Advanced 36 Support Line contract in the U.S., you may request the latest preventive PTF tape by either sending a facsimile or writing a letter. You can use either of the following methods:

  U.S. only Fax number: 1-800-288-9584

  U.S. mailing address:

IBM Corporation
Department 909
3605 Highway 52 North
Rochester, MN 55901

You may be instructed to use one of the previously described SSP procedures or OS/400 commands to display your current ″cum level″.

- Using OS/400 ECS support - Send PTF Order (SNDPTFORD) command:

  By specifying a PTF number (identifier), you can either order the specific PTF or order ″special PTF information″ as shown in the following table.

Table 11. SNDPTFORD Command Options

PTF Information	Command and Parameter
Specific PTFs and cover letters	SNDPTFORD PTFID(nnnnnnn)
PTF cover letter only	SNDPTFORD PTFID(nnnnnnn) PTFPARE(*CVRLTR)
Cumulative PTF package for OS/400, OS/400 LPPs	SNDPTFORD PTFID(SF99360)
Cumulative PTF package for SSP, SSP LPPs	SNDPTFORD PTFID(U599075)
PSP information: OS/400, SSP, LPPs	SNDPTFORD PTFID(SF98360)
PSP information for SSP, SSP LPPs	SNDPTFORD PTFID(U598075)
PSP information: Licensed Internal Code	SNDPTFORD PTFID(MF98360)
PTF Summary List	SNDPTFORD PTFID(SF97360)

Note:

- nnnnnnn is the specific PTF number to be ordered
- SF99360, SF98360, MF98360, SF97360

  The last three characters represent ″vrm,″ where ″v″ is the version (3, in this case), ″r″ is the release (6, in this case), and ″m″ is the modification level (0, in this case).

For more information on the entire Model 436 PTF process, refer to *AS/400 Advanced 36 Operator Tasks - Multiple Operating Systems*, SC21-8384, and *OS/400 System Startup and Problem Handling*, SC41-4206.

5.2.6 Reviewing Received PTF Information

When you receive a PTF or a group of PTFs distributed on a 1/4-inch tape cartridge or a CD-ROM, you should review the information provided **before doing any load and apply actions.**

As is shown later, PTFs received electronically typically include a cover letter that should be reviewed.

For PTFs on tape cartridge or CD-ROM, you receive a ″PTF Shipping Information Letter″ that should be reviewed. You also receive information contained on the media itself.

If you received SSP PTFs, you should place the media in the tape drive or the CD-ROM drive and ensure the SSP TC (tape cartridge) device is assigned to the tape drive or the CD-ROM, whichever is being used. After the device becomes ″ready″, you can enter the SSP procedure **PTF NEWS,RESTORE**. This restores the PTFNEWS library to the system disk for later review.

You enter **PTF NEWS** and the PTF Procedure display options are presented for displaying or printing the PTF information. Review the information and use it for installing PTFs from the tape cartridge or CD-ROM media. The following is an example of the PTF information you may review.

```
************************************************************************
*                                                                      *
*                RELEASE 7.5 PTF BULLETIN FILE                         *
*                                                                      *
*  THIS PTF BULLETIN FILE CONTAINS IMPORTANT ″READ-ME-FIRST″ DATA.     *
*  THE ″ABSTRACT ALLOWS YOU TO DETERMINE WHETHER OR NOT THE DATA       *
*  IS APPROPRIATE FOR YOUR SYSTEM USAGE. ″ADDITIONAL INFORMATION″      *
*  PROVIDES MORE DETAIL ON THE ″READ-ME-FIRST″ DATA WHENEVER IT        *
*  IS NECESSARY.                                                       *
*                                                                      *
*  CURRENT PTF LEVEL: XXXXXXX      LAST BULLETIN UPDATE: XXXXXXXXXX    *
*                                                                      *
*  TAPE MEDIA IN xxxxxxxxx PREVENTATIVE PTF PACKAGE:                   *
*    SYSTEM UNIT:     9402 ONE QIC525 1/4 INCH TAPE CARTRIDGE          *
*                                                                      *
*  TAPE MEDIA IN xxxxxxxxx CORRECTIVE PTF PACKAGE:                  *
*    SYSTEM UNIT:     9402 ONE QIC525 1/4 INCH TAPE CARTRIDGE          *
*                                                                      *
*                                                                      *
************************************************************************
```

If you changed TC device mapping to the CD-ROM drive and are **not** going to use the CD-ROM in later steps to install one or more PTFs, you must change TC device mapping back to the tape cartridge drive.

You **must** review the detail PTF installation instructions documented in the *Operator Tasks-Multiple Operating Systems*, SC21-8384, chapter ″Working with SSP Program Temporary Fixes,″ before proceeding to install SSP PTFs received on the tape cartridge or CD-ROM media.

5.2.7 Installing PTFs Received Electronically

The following sections use an example to show how to receive an SSP PTF electronically under OS/400 ECS support and install it on a Model 436 SSP. Remember, that if you run multiple SSPs at the same time, you must install the PTF on each SSP. (If a PTF applies to Licensed Internal Code or OS/400, you do not apply the PTF to the SSP.)

If you have OS/400 installed and you know the PTF number, you can order SSP PTFs through ECS, then load and apply them to your logical M36 machine (or machines). AS/400 Advanced 36 customers should periodically order, copy, and apply PTFs (preventive).

5.2.7.1 SSP PTF Ordering and Installing

For **setting up your ECS connection**, refer to *Fast Path Installation of your Advanced 36*, SA41-4138.

For **installing electronically received PTFs**, refer to *AS/400 Advanced 36 Operator Tasks - Multiple Operating Systems*, SC21-8384.

5.2.7.2 Retrieve the PTF on OS/400

Sign on to the OS/400 machine and use the SNDPTFORD command on the OS/400 to order a specific PTF. The first two characters of the PTF define where the PTF has to be installed.

- **U5** is used for SSP PTFs.
- **SF** is used for OS/400 PTFs.
- **MF** is used for LIC PTFs.

Type the following:

1. SNDPTFORD
2. Press F4.

The Send PTF Order display is shown.

```
                          Send PTF Order (SNDPTFORD)

 Type choices, press Enter.

 PTF description:
   PTF identifier . . . . . . . .   U575207       Character value
   Product  . . . . . . . . . . .   *ONLYPRD      F4 for list
   Release  . . . . . . . . . . .   *ONLYRLS      *ONLYRLS, VxRxMx
                + for more values
 PTF parts  . . . . . . . . . . .   *ALL          *ALL, *CVRLTR
 Remote control point . . . . . .   *IBMSRV       Name, *IBMSRV, *SELECT
 Remote network identifier  . . .   *NETATR       Name, *NETATR




                                                                      Bottom
 F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cancel
 F13=How to use this display        F24=More keys
```

Type the following:

1. PTF identifier = U575207
2. Press Enter.

The Verify Contact Information display is shown:

```
                          Verify Contact Information
                                                                  System:   IM436M06
 Type changes, press Enter.

   Company . . . . . . . . . .   IBM
   Contact . . . . . . . . . .   Jim Earlers
   Mailing address:
     Street address  . . . . .   4111 HWY 88 North
                                 Bldg. 135-3 Dep.: 321

     City/State  . . . . . . .   Rockland, MN
     Country . . . . . . . . .   USA
     Zip code  . . . . . . . .   55331
   Telephone numbers:
     Primary . . . . . . . . .   501-287-5789
     Alternative . . . . . . .   501-286-1234
   Fax telephone numbers:
     Primary . . . . . . . . .
     Alternative . . . . . . .
   National language version    2924   F4 for list
                                                                           Bottom
 F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel

 (C) COPYRIGHT IBM CORP. 1980, 1995.
```

Type the following.

1. Verify the information.

   The contact information is defined through the OS/400 Work with Contact Information (WRKCNTINF) command, ″Work with local service information″ menu option.

2. Press Enter.

The Select Reporting Option display is shown.

```
                          Select Reporting Option
                                                                  System:   IM436M06
  Problem ID . . . . . . . . . :   9532438341
  Current status . . . . . . . :   READY
  Problem  . . . . . . . . . . :   Fix request




  Select one of the following:

       1. Send service request now
       2. Do not send service request
       3. Report service request by voice




  Selection  1


  F3=Exit   F12=Cancel
  Connecting to remote system - please wait
```

Type the following:

1. Selection = 1
2. Press Enter.

The following messages are shown:

- Connecting to remote system - please wait.
- Sign on to service support system in progress.

- Sign on to service support system complete.
- Sending PTF order 9532438341.
- Cover letter has been copied to file QAPZCOVER member QU575207 V0R7M5.
- Received record 5 for PTF 5716SSP-U575207.
- PTF 5716SSP-U575207 V0R7M5 received and stored in library QGPL.
- Request for problem 9532440327 complete. PTFs sent.
- PTF order completed Service number 4X033.

Note: If the message ″error occurred while processing request″ is shown, look into the OS/400 joblog to verify the problem. Sometimes the message comes up because the Service System is busy. Try your request again after a few minutes.

The PTF is loaded into a SAVF in Library QGPL.

Note: Review the cover letter of the PTF on your terminal to ensure that there are no special requirements for this PTF. For example, additional PTFs may be required.

The cover letter is always placed into the OS/400 database file **QAPZCOVER** in library QGPL. The cover letter is treated as a database file member and is named **Q**ccccccc, where ccccccc is the PTF number.

To get a List of all Cover Letters type the following:

1. WRKMBRPDM FILE(QGPL/QAPZCOVER)
2. Press Enter.

The Work with Members Using PDM display is shown.

```
                          Work with Members Using PDM                IM436M06

  File  . . . . . .   QAPZCOVER
    Library . . . .     QGPL                Position to  . . . . .

  Type options, press Enter.
    3=Copy    4=Delete         5=Display   7=Rename    8=Display description
    9=Save    13=Change text   18=Change using DFU     25=Find string ...

  Opt  Member      Date        Text
  _5   QU575207    11/19/95    PTF 5716SSP-U575207 V0R7M5
 __    QU575212    11/20/95    PTF 5716SSP-U575212 V0R7M5




                                                                        Bottom
  Parameters or command
  ===>
  F3=Exit          F4=Prompt             F5=Refresh            F6=Create
  F9=Retrieve      F10=Command entry     F23=More options      F24=More keys
```

To read a cover letter type the following:

1. Enter 5 next to the cover letter.
2. Press Enter.

The Display Physical File Member display is shown.

```
                          Display Physical File Member
File . . . . . . :   QAPZCOVER          Library  . . . . :   QGPL
Member . . . . . :   QU575207           Record . . . . . :   1
Control  . . . . .                      Column . . . . . :   1
Find . . . . . . .
*...+....1....+....2....+....3....+....4....+....5....+....6....+....7....+...
..          5716999 5050 0000 U575207 2924 R06M00    0003 ûû
.,




  Patch ID:

   The identifier TFA45666 has been assigned to this patch.


  Patch Description:

                                                                        More...
F3=Exit   F12=Cancel   F19=Left   F20=Right   F24=More keys
```

Note: Notice the identifier of the patch. You need the identifier (**TFA45666**) for the SSP ECSAPTCH procedure. Refer to 5.2.7.3, “Install the PTF on the SSP Machine” on page 133 for more information on ECSPATHC.

Type the following:

1. Press Page-Down.

The next page of the Display Physical File Member display is shown.

```
                          Display Physical File Member
File . . . . . . :   QAPZCOVER          Library  . . . . :   QGPL
Member . . . . . :   QU575207           Record . . . . . :   16
Control  . . . . .                      Column . . . . . :   1
Find . . . . . . .
*...+....1....+....2....+....3....+....4....+....5....+....6....+....7....+...
        This patch fixes problems addressed by APAR S345666.


  Environmental Information:

        (note any special hardware, software, or configuration
         info. )

        None.


  Special Instructions:

        After applying the patch, IPL the system.

                                                                        More...
F3=Exit   F12=Cancel   F19=Left   F20=Right   F24=More keys
```

Type the following:

1. Press F3.

If you want to see a specific Cover Letter, you can also use:

DSPPFM FILE(QGPL/QAPZCOVER) MBR(QU5xxxxx) where xxxxx is the PTF Number.

You may also print the cover letter stored in library QGPL through the following OS/400 command:

CPYF FROMFILE(QGPL/QAPZCOVER) TOFILE(*PRINT) FROMMBR(QU5xxxxxx)

Note: Make sure that the user profile QUSER has *ALL Object authority to the OS/400 save file. (PTFs are transmitted electronically within an OS/400 save file object type.)

QUSER is the default user profile to start the M36. The default user profile is also used for job QNURHHGH. The QNURHHGH runs in OS/400 subsystem QSYSWRK. The QNURHHGH job is an OS/400 Prestart job. One of its functions is to copy the PTF to the M36.

To grant the Object Authority, type:

1. GRTOBJAUT OBJ(QGPL/QU575207) OBJTYPE(*FILE) USER(QUSER) AUT(*ALL)
2. Press Enter.

5.2.7.3 Install the PTF on the SSP Machine

Note: Refer to *AS/400 Advanced 36 Operator Tasks - Multiple Operating Systems*, SC21-8384, for a step-by-step description of the tasks.

The installation requires a dedicated M36 and the **ECSAPTCH** procedure is used to install the PTF. You also need a tape to save the PTF for backup. The ILAN must be active and Distributed Data Management (DDM) must be setup.

- Refer to 4.4, “How to Start and Maintain Internal Local Area Network” on page 107 for ILAN information.
- Refer to 16.3, “Preparing a NRD for Electronically Ordered PTFs” on page 285 for DDM.

Type the following:

1. ECSAPTCH savfname,patchid
2. Press Enter.

You receive the following messages on your display.

```
 Input-Output


 ECSAPTCH QU575207,TFA45666
ECSAPTCH  procedure is running
 CMD running in job 001680/QUSER/QNURHMED        14:07:37
When the NETWORK RESOURCE DIRECTORY display comes  up
find the LOCAL LABEL - LOCPTFFL.  Modify the REMOTE
LABEL on this entry to be:
 U575207
When you are done, press CMD7 to end the edit.
When ready to continue, respond with 0 to SYS-3726.

SYS-3725  Options (0    )
Pause--when ready, enter 0 to continue
```

Type the following.

1. Option = 0
2. Press Enter.

The SSP Network Resource Directory display is shown.

```
                         NETWORK RESOURCE DIRECTORY

                       Edits entries in the directory

 Scan for local label  . . . . . . . . . . . . . . . . . . . . .
 ____________________________________________________________________________

         LOCAL     REMOTE    REMOTE
         LABEL     LOCATION  LABEL

         LOCPTFFL  IM436M06  QU575207
         RMTOS     IM436M06  OS4FILE.DDMLIB
         RMTSSP2   IBMM3602  SSPFILE
         RMTSSP3   IBMM3603  SSPFILE


 Cmd4-Delete  Cmd6-Print    Cmd7-End   Cmd8-Reset     Cmd10-Add  Roll keys-Page
                                                             (c) 1985 IBM Corp.
```

Type the following:

1. Change the Remote Label of the LOCPTFFL to QU575207.
2. Press Enter.
3. Press F7.

You receive the following messages on your display.

```
  Input-Output


  ECSAPTCH QU575207,TFA45666
 ECSAPTCH  procedure is running
  CMD running in job 001680/QUSER/QNURHMED        14:07:37
 When the NETWORK RESOURCE DIRECTORY display comes  up
 find the LOCAL LABEL - LOCPTFFL.  Modify the REMOTE
 LABEL on this entry to be:
  U575207
 When you are done, press CMD7 to end the edit.
 When ready to continue, respond with 0 to SYS-3726.
  EDITNRD procedure is running
  COPYDATA procedure is running
  BLDLIBR procedure is running
 AUTOPTCH  procedure is running

 SYS-6111  Options ( 123 )
 Dedicated system required for this PTF function...
```

Put the System in dedicated Mode:

1. Press Attention Key.

The INQUIRY OPTIONS display is shown.

```
INQUIRY OPTION7             Current Interrupted Job: #1140736              #1

  0. Resume current interrupted job
  1. Request Command display
  2. Cancel job and close files; new data is saved
  3. Cancel job; new files are lost
  4. Set inquiry condition for program
  5. Display session status
  6. Display messages sent to this display station
  7.

Enter number to select option
 1
```

Type the following:

1. 1
2. Press Enter.

The MAIN INQUIRY display is shown.

```
                                   MAIN          INQUIRY                    #1

                         Main System/36 help menu

Select one of the following:

   1. Display a user menu
   2. Perform general system activities
   3. Use and control printers, diskettes, or tape
   4. Work with files, libraries, or folders
   5. Use programming languages and utilities
   6. Communicate with another system or user
   7. Define the system and its users
   8. Use problem determination and service
   9. Use office products


Cmd3-Previous menu   Cmd7-End     Cmd12-How to use help     Home-Sign on menu

Ready for option number or command          Cmd1-Resume job


                                                            COPR IBM Corp. 1990
```

Type the following:

1. DISABLE ILANSBS
2. Press Enter.
3. Press F1.

You receive the following messages on your display.

```
Input-Output
  ECSAPTCH QU575207,TFA45666
 ECSAPTCH  procedure is running
  CMD running in job 001680/QUSER/QNURHMED        14:07:37
 When the NETWORK RESOURCE DIRECTORY display comes  up
 find the LOCAL LABEL - LOCPTFFL.  Modify the REMOTE
 LABEL on this entry to be:
  U575207
 When you are done, press CMD7 to end the edit.
 When ready to continue, respond with 0 to SYS-3726.
  EDITNRD procedure is running
  COPYDATA procedure is running
  BLDLIBR procedure is running
 AUTOPTCH  procedure is running
 Insert a tape in the tape cartridge drive on which
 you want to backup the corrective PTF.  The volume ID
 must be AUTOPT.
 When ready to continue, respond with 0 to SYS-3726.

 SYS-3725  Options (0    )
 Pause--when ready, enter 0 to continue
```

Type the following:

1. Option = 0
2. Press Enter.

Note: The PTF installation is finished. Refer to the Cover letter to see if there are any special tasks to do to activate the PTF. The SSP PTF LIST procedure does not show the PTF ″status.″

Part 4. PC Support/36 and Client Access/400

This part describes how to configure the attachment of personal computers (PCs) to AS/400 Advanced 36 through either PC Support/36 or Client Access/400. An overview of the functions available when connecting to either SSP Release 7.5 or OS/400 is presented. However, a thorough description of both PC Support/36 functions to SSP and Client Access/400 functions to either SSP Release 7.5 or OS/400 V3 R6 is beyond the scope of this redbook. Refer to *Advanced 36 Coexistence User's Guide*, SC21-8386, for a very detailed description of PC Support/36 compared to Client Access/400.

PC Support/36 provides the following functions to the "heritage System/36 systems" (SSP releases up through 6.1):

- Shared Folders
- Work Station Function (5250 emulation)
- (File) Transfer Function
- Virtual Print
- Messaging
- PC Organizer
- 5250 Text Assist

The PC Support/36 Coexistence support PRPQ was introduced to enable a client workstation running AS/400 PC Support/400 to connect either to a heritage System/36 or to an AS/400 system with OS/400. With the introduction of AS/400 Advanced 36 - Model 236 SSP Release 7.1 and AS/400 Advanced 36 - Model 436 SSP Release 7.5, this coexistence support is included as part of the SSP support.

As is the case where PC Support/400, **now called Client Access/400**, was connecting to both an SSP and OS/400 running on *different* systems, this coexistence support is necessary when both SSP and OS/400 are running on the *same* system, the Model 436.

Since Client Access/400 contains many more enhancements over both PC Support/36 and PC Support/400, it is recommend that Client Access/400 be used on the client workstations attached to a Model 436. However, because of these Client Access/400 enhancements, it is important to have proper expectations when connecting to SSP 7.5.

In general, when connecting Client Access/400 to SSP 7.5, the client has all of the *functions* available under PC Support/36, though the client provides user interface enhancements as well as some client storage management enhancements. This is true when the clients are running the following Client Access/400 support:

- Client Access/400 for DOS (sometimes called real DOS or basic DOS)
- Client Access/400 for DOS Extended
- Client Access/400 for OS/2

Though some functions such as Work Station Function or 5250 emulation or RUMBA may work with an SSP, the following Client Access/400 client capabilities **are not supported to SSP**:

- Client Access/400 for Windows 3.1
- Client Access/400 for Windows 95
- Client Access/400 for OS/2 (Optimized)

In general, these ″non-SSP clients″ have unique data streams that are not supported by the SSP ″servers″ for Shared Folders, and so on. This is why they cannot work with SSP.

Client enhancements available under Client Access/400 for the supported clients to SSP, include:

- Additional connection options, such as through OS/400 Ethernet support:

  SSP servers do not support direct connection to PC Support/36 over twinax or Ethernet using APPC LU 6.2 protocols. Client Access/400 uses LU6.2 protocol or TCP/IP. SSP does not support TCP/IP either.
- Graphical User Interface (GUI) to configuration and function selection
- Choosing 5250 display color options (″WSF Colors″)
- Freeing up PC memory when some Client Access/400 functions are no longer being used (″Remove PCS″)
- Error logging and message help text on the client

When V3R6 Client Access/400 is connected to OS/400, enhancements **not available when connecting to SSP** include:

- Client SQL support to the OS/400 DB2/400 database through the **O**pen **D**ata**b**ase **C**onnectivity - **ODBC** de-facto industry standard.
- Client SQL support to the OS/400 DB2/400 database through the **Remote SQL** (AS/400 unique interface) support.
- Application Programming Interfaces (APIs) that include Data Queue support.
- Submit Remote Command (run commands on OS/400) support.

Use of these advanced functions to SSP 7.5 is not possible as they require extensive software development under SSP that is simply not cost-justified. For example, OS/400 host server code and Structured Query Language (SQL) support must be added to SSP.

If you need to use these advanced OS/400 functions, you must move or copy your SSP data to OS/400.

The following PC Support/36 and Client Access/400 connections are discussed in this part:

1. Chapter 6, “PC Support/36 to a M36 Machine on Twinax” on page 141
2. Chapter 7, “PC Support/36 to M36 Machine on Token-Ring” on page 149
3. Chapter 8, “Client Access/400 for DOS Ext to M36 on Token-Ring” on page 167
4. Chapter 9, “Client Access/400 for DOS Ext to M36 through OS/400 on Token-Ring” on page 183
5. Chapter 10, “Client Access/400 for DOS Ext to M36 through OS/400 on Ethernet” on page 201
6. Chapter 11, “Client Access/400 for OS/2 to M36 on Token-Ring” on page 213

7. Chapter 12, “Client Access/400 for OS/2 to M36 through OS/400 on Token-Ring” on page 231
8. Chapter 13, “Client Access/400 for OS/2 to OS/400 through M36 on Token-Ring” on page 245

Note: In this part, the term *M36* is used to represent the active SSP M36 Machine.

Client Access/400 Optimized OS/2 client, Windows 3.1 client, and Windows 95 client are not included in this chapter. This is because the SSP host server code required is not available for the expected functions.

Chapter 6. PC Support/36 to a M36 Machine on Twinax

This chapter covers the configuration steps necessary to set up PC Support/36 for a PC connected to the system through twinax. The PC may be any of the following types:

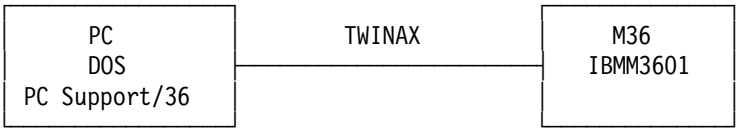
- Default OS/400 session and transferred to an SSP machine (mapped and non-mapped).
- Default OS/400 session and passthru to an SSP machine.
- Default M36 session - assigned to an SSP machine.

As long as the PC has an SSP machine display, PC Support/36 can be started with that machine.

Note: In this chapter, ″M36″ is used as an abbreviation for ″SSP machine.″

This configuration may be used for the following reasons:

- DOS is loaded on the PC.
- The PC has 5250 twinax emulated terminal sessions to an SSP machine.
- There is no requirement for DOS Extended capabilities of Client Access/400 or to run its functions in Windows.
- The PC is used for any of the following PC Support/36 functions to the SSP machine.
  1. Virtual disk
  2. Shared folders
  3. Organizer
  4. File transfer
  5. Virtual print
  6. Text assist
  7. Messaging



6.1 System Requirements

The following are required on the AS/400 Advanced 36:

1. A configured SSP machine
2. A local Work Station Controller twinax connection
3. PC Support/36

The following are required on the PC:

1. A 5250 twinax emulation adapter and its emulation program
2. PC Support/36

6.2 M36 Configuration

The PC on which you are running PC Support/36 must be configured on the system so that it is able to get to an SSP Signon display.

6.3 PC Configuration

The 5250 emulation program has to be installed on the PC.

Install PC Support/36 on the PC by doing the following:

1. Insert the PC Support/36 Installation diskette into the A drive on your PC.
2. At your DOS prompt, run the command A :INSTALL F to install PC Support/36 onto your fixed (hard) disk. You get the following display:

```
                        SYSTEM/36 - PC ATTACHMENT



     Select Type of attachment

       1.  Emulation
       2.  IBM Token-Ring Network
       3.  5364 System Console


     Select ===>  1





 ---------------------------------------------------------------------------
     Enter  Esc=Quit
                                          Version 04.00 (c) IBM Corp. 1987
```

   Select option 1 and press Enter.

3. You may leave the fixed drive name and the directory name as default or change them according to your requirements.

```
                    FIXED DISK DRIVE AND DIRECTORY

    Enter the drive and directory names in which the PC Support/36 programs
    are to be installed. To specify the root directory, enter blanks.

    If the directory does not exist, it will be created in the root directory.

      Fixed Disk drive name . . . . . . . . . . . . C

      PC Support/36 directory name  . . . . . . . . PCS36





 ---------------------------------------------------------------------------
     Enter  Esc=Quit
```

Press Enter.

4. Choose the option for the name of your emulation program from the display if you are using IBM Enhanced 5250 Emulation or IBM Remote 5250 Emulation. Otherwise, choose option 5 to specify the name of your emulation program.

```
                                   EMULATION

  Select the type of emulation program

    1.  DE5250.COM
    2.  DP5250.COM
    3.  RE5250.COM
    4.  RP5250.COM
    5.  Other emulation program


  Select ===> 5









 ------------------------------------------------------------------------------
     Enter  Esc=Quit
```

In this example, we are running IBM Workstation Emulation so we choose option 5 and press Enter.

5. Fill in the name of your emulation program and associated parameters for the program.

```
                         EMULATION PROGRAM AND PARAMETERS


  Enter the name and any parameters for the emulation program

    Program name       WSE.COM
    Parameters
            M=MASTER.DAT









 ------------------------------------------------------------------------------
     Enter  Esc=Quit
```

In our case, we normally start the emulation program by running:

```
WSE M=MASTER.DAT
```

So we fill in WSE.COM as the name of the emulation program to run and M=MASTER.DAT as the parameter. Press Enter to continue.

```
                          ADDITIONAL PROGRAM SUPPORT

  Will you be using:

    Organizer? . . . . . . . . . . . . (1=Yes, 0=No)  0

    Shared folders facility? . . . . . (1=Yes, 0=No)  0



---------------------------------------------------------------------------
    Enter  Esc=Quit
```

6. Leave the prompts for the Organizer and Shared folders as 0 if you do not want to use these functions. Press Enter.
7. The next display gives you a list of programs that are copied from the installation diskette into your fixed drive.

```
                             INSTALLATION FILE COPY

   The following files will be copied from the PC Support/36 install
   diskette to the specified directory.  Press Enter to start.


        CFGVDSK.COM
        STARTRTR.EXE
        5250RTR.RXR
        STOPRTR.EXE
        VDSK.SYS
        FSDDX.SYS
        FSDD.SYS



---------------------------------------------------------------------------
    Enter  Esc=Quit
```

   Press Enter to initiate the copying process.
8. At the conclusion of the copying process, you get a completion display. Follow the instructions on the display.

```
                              INSTALLATION COMPLETE


   The PC Support/36 installation is now complete.

   You must now do one of the following:

   1) Remove the PC Support/36 install diskette from drive A.
      Press the Ctrl-Alt-Del keys to restart your personal computer.
      After the personal computer is restarted, type:

                            C:\PCS36\LINK36

      Note:  You may want to add this command to your AUTOEXEC.BAT file

                                        OR

   2) Press Enter to end.


-----------------------------------------------------------------------------
    Enter  Esc=Quit
```

This completes the installation steps. You should have the following entries in the PC's CONFIG.S36 file in PCS36:

```
SUPPORT/36
RTYP 5250
VDSK I,#IWPCLD2,3
```

The PC's CONFIG.SYS file should have the following entry:

```
DEVICE=C:\PCS36\VDSK.SYS
```

If you chose to install the shared folders function as well, you should also have the following entries in the PC's CONFIG.SYS file:

```
DEVICE=C:\PCS36\FSDDX.SYS
DEVICE=C:\PCS36\FSDD.SYS
```

The PC's LINK36.BAT file should look as follows:

```
C:
CD \WSE
WSE.COM M=MASTER.DAT
C:
CD \PCS36
STARTRTR.EXE
ECHO OFF
IF ERRORLEVEL 20 GOTO EXIT
ECHO ON
CFGVDSK.COM
ECHO OFF
IF ERRORLEVEL 20 GOTO EXIT
I:
:EXIT
ECHO ON
```

Read this

If you have an OS/400 display by default on your PC, you have to either transfer to the SSP machine (TFRM36) or start passthru to the SSP machine (STRPASTHR) to establish an SSP session before starting up PC Support/36 to the SSP machine. If this is the case for your setup, then you may want to edit the LINK36.BAT file to remove statements that start up the emulation program. Otherwise, you encounter problems when you have an OS/400 display while LINK36.BAT tries to start up a router session to an SSP machine.

6.4 Operation

1. The PC on which you start PC Support/36 should be of the following types:
   - A default OS/400 session and transferred to SSP (mapped/ non-mapped).
   - A default SSP session - assigned to an SSP machine.

   The workstation on the SSP machine should have a status of **On-Line** before you attempt to start up the emulation program on your PC. To check the status, you can run DF W at the command line. You see the following display.

```
Complete                    STATUS WORK STATION                          W1


     WS-ID  CONS   TYPE            STATUS      USER      JOBNAME   SUB   SSD
       TC    --    Tape            On-Line     --------  --------   -     -
       W1    --    Sys Console     Active      WWCHIA    --------   -     -
       P1    --    Command         On-Line     --------  --------   -     N
       W8    --    Command         On-Line     --------  --------   -     N









     Cmd9-Next segment
     Cmd7-End        Cmd15-Update        Cmd16-Restart        Roll-Page

Ready for command or procedure


                                                        (c) 1994 IBM Corp.
```

   In this example, we want to emulate the PC as W8. As you can see from the previous display, W8 has a status of On-Line. This means that we are ready to start PC Support/36.

2. If the PC on which you want to start PC Support/36 is of the type where you pass through from OS/400 to get a session on the SSP machine, you have to make sure that the SSP communications subsystem is enabled for the OS/400 location before you attempt to start PC Support/36. To check the status of the communications link on the M36, run D I at the command line to get the following display.

```
 Complete                        SUBSYSTEM STATUS                              #1

CONFIG   CONFIG    LINE  LOCATION   STATUS       COMMUNI-   --NO. OF SESSIONS--
NAME     TYPE            NAME                    CATING     EVOKED     ACQUIRED
ILANSBS  APPC       15   IBMM3602  Enabled          N        ---          ---
                         IBMM3603  Enabled          Y        ---          ---
                         IM436M06  Enabled          Y        ---          ---
                         SYSNM001  Enabled          Y        ---          ---
                         P23XWZ42  Enabled          Y        ---          ---
                         P7089171  Enabled          Y        ---          ---

  Cmd7-End      Cmd8-Help     Cmd15-Update      Cmd16-Restart      Roll-Page
--------------------------------------------------------------------------------
                                    CNTLLINE
                         Start or stop communication lines
    1. Start a subsystem
    2. Stop a subsystem                 6. Control APPC
    3. Start monitoring a BSC line      7. Control alert support
    4. Stop monitoring a BSC line

 Ready for option number or command


                                                          COPR IBM Corp. 1985
```

Note that you may include the ENABLE procedure into either your #STRTUP1 or #STRTUP2 OCL procedure in #LIBRARY to automatically start up the subsystem at IPL.

In this example, we want to passthru from an OS/400 location with the name SYSNM006. Notice from the previous display that IM436M06 is in the correct state for passthru to work. It has a status of **Enabled** and is communicating with the SSP machine.

Use any of the following methods to start PC Support/36 from the PC:

1. If the PC is assigned to an SSP machine, then by default it already has an SSP session at Signon. In this case, simply run LINK36.BAT.
2. If the PC has an OS/400 session at Signon by default and is able to to transfer to an SSP machine, start the emulation program at the PC and run TFRM36 in the OS/400 session to get an SSP session. Hot key to DOS at the PC and run the LINK36.BAT that has had the emulation program statements removed from it.
3. If the PC has an OS/400 session by default at Signon and can pass through to an SSP machine, start the emulation program at the PC and run STRPASTHR in the OS/400 session to get an SSP session. Hot key to DOS at the PC and run LINK36.BAT that has had the emulation program statements removed from it.

Chapter 7. PC Support/36 to M36 Machine on Token-Ring

This chapter covers the configuration steps necessary to set up PC Support/36 for a PC connected to the SSP machine through token-ring.

Note: In this chapter, ″M36″ is used as an abbreviation for ″SSP machine.″

This configuration may be used for the following reasons:

- DOS is loaded on the PC.
- The PC and Model 436 are connected to the token-ring network.
- There is a need for the PC to have 5250 terminal sessions for the SSP machine.
- There is no requirement for DOS Extended capabilities of Client Access/400 nor running its functions in Windows.
- The PC is used for any of the following PC Support/36 functions on the SSP machine:
  1. Virtual disk
  2. Shared folders
  3. Organizer
  4. File transfer
  5. Virtual print
  6. Text assist
  7. Workstation function
  8. Messaging

7.1 System Requirements

The following are required on the Model 436:

1. OS/400 with an SSP machine configured
2. A token-ring adapter
3. PC Support/36 base
4. PC Support/36 IBM Token-Ring network support
5. PC Support/36 Workstation feature
6. Base communications support
7. Extended communications support
8. LAN communications support

The following are required on the PC:

1. A token-ring adapter and its driver diskette

2. IBM LAN Support Program Version 1.3 (Product Number 93F2456)
3. PC Support/36
4. PC Support/36 Work Station Function

Note that if you have Client Access/400 - PC Tools folder code installed in OS/400 (5716XA1, Option 1, Feature 5050), you may get a copy of IBM LAN Support Program from the QIWSTOOL shared folder. The files related to IBM LAN Support Program in the QIWSTOOL shared folder start with the letters LSP. Display the contents of LSP135.DOC to find out how to extract LAN Support Program files. If you do not have a copy of PC Support/400, you can purchase copies of IBM LAN Support Program from your PC vendor.

7.2 M36 Configuration

The SPP machine configuration has to be changed to allow line 9 or 10 of the SSP machine to use a physical token-ring adapter. Note that SSP supports only lines 9 and 10 to be assigned to token-ring adapters. In this example, the M36 line 10 is configured to use the token-ring adapter CMN02 (AS/400 hardware resource name automatically assigned by LIC).

The following steps are used to change the SSP machine configuration object:

1. Sign on to OS/400. At the command line, type in CHGM36CFG and press F4.
2. Type in the name of your SSP machine configuration object name and its library name.

```
                    Change Machine Configuration (CHGM36CFG)

Type choices, press Enter.

Machine configuration  . . . . . > SSPCFG1       Name
  Library  . . . . . . . . . . . >   SSP1        Name, *LIBL, *CURLIB
From machine . . . . . . . . . .   *NONE         Name, *NONE
  Library  . . . . . . . . . . .                 Name, *LIBL, *CURLIB
From machine configuration . . .   *NONE         Name, *NONE
  Library  . . . . . . . . . . .                 Name, *LIBL, *CURLIB
Text 'description' . . . . . . .   *BLANK

                                                                    Bottom
F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
F24=More keys
```

3. Press Enter.
4. At the next display, choose option 6 to Change M36 communications lines.

```
                          Change M36 Configuration

M36 configuration  . :   SSPCFG1
  Library  . . . . . :     SSP1

Select one of the following:

     1. Change M36 attributes
     2. Change M36 display and printer devices
     3. Change M36 display and printer device attributes
     4. Change M36 tape and optical devices
     5. Change M36 diskette devices
     6. Change M36 communication lines







Selection
     6

F3=Exit   F12=Cancel   F19=Validate configuration
(C) COPYRIGHT IBM CORP. 1980, 1995.
```

5. Press Enter.

```
                        Change M36 Communication Lines

M36 configuration  . :   SSPCFG1
  Library  . . . . . :     SSP1

Type values, press Enter.

     M36             AS/400
Communication     Communication
    Line            Resource
      1            _______
      2            _______
      3            _______
      4            _______
      5            _______
      6            _______
      7            _______
      8            _______
      9            _______
     10            _______

                                                                    Bottom
F3=Exit   F4=Prompt   F5=Refresh   F10=Set defaults   F12=Cancel
```

6. Position your cursor under the column AS/400 Communications Resource next to M36 Communication Line 10. Press F4.

7. The next display shows you the available token-ring adapters on your system. Type a 1 in the Opt column next to Name CMN02.

```
                         Change M36 Communication Lines
 ......................................................................
 :                        Select AS/400 Comm Lines                    :
 :                                                                    :
 :  Type option, press Enter.                                         :
 :    1=Select                                                        :
 :                                                                    :
 :                  Line                                              :
 :  Opt  Name       Type  Description                                 :
 :   1   CMN02      2619  Token-Ring Port                             :
 :   _   CMN01      2619  Token-Ref Port                              :
 :                                                                    :
 :                                                                    :
 :                                                                    :
 :                                                                    :
 :                                                                    :
 :                                                                    :
 :                                                            Bottom  :
 :  F11=Display name only   F12=Cancel                                :
 :                                                                    :
 :....................................................................:
                                                                Bottom
 F3=Exit   F4=Prompt   F5=Refresh   F10=Set defaults   F12=Cancel
```

8. Press Enter.

```
                         Change M36 Communication Lines

 M36 configuration  . :   SSPCFG1
   Library  . . . . . :     SSP1

 Type values, press Enter.

      M36            AS/400
 Communication     Communication
     Line            Resource
       1            _______
       2            _______
       3            _______
       4            _______
       5            _______
       6            _______
       7            _______
       8            _______
       9            _______
      10            CMN02___

                                                                Bottom
 F3=Exit   F4=Prompt   F5=Refresh   F10=Set defaults   F12=Cancel
```

9. You should see your previous display, but this time with CMN02 next to line 10. Press F3.
10. At the next display, choose option 1 to Save and exit.
11. To activate the changes you have just completed, you need to power off the SSP machine and reissue STRM36 and apply the changed SSP machine configuration record. Press function key F4 and fill in the parameters according to the following display:

```
                              Start Machine (STRM36)

  Type choices, press Enter.

  Machine  . . . . . . . . . . . . M36          > SSP1
    Library  . . . . . . . . . . .              >   SSP1
  IPL type . . . . . . . . . . . . IPLTYPE        *M36
  User profile . . . . . . . . . . USRPRF         *M36
  Apply configuration  . . . . . . APYM36CFG    > SSPCFG1
    Library  . . . . . . . . . . .              >   SSP1

                                                                      Bottom
  F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
  F24=More keys
```

12. Press Enter.

7.3 M36 Token-Ring Configuration

Check the SSP machine's token-ring address to to determine if it has been set by running D H at the command line. Use the Page Up and Page Down keys to scroll the display until you see the definitions for either line 9 or 10. Note that only lines 9 and 10 can be used to define external token-ring lines. Our example uses line 10.

```
                         SYSTEM COMMUNICATIONS CONFIGURATION LINE 10        #1

 Hardware configuration . . . . IBM TRN
 Adapter address  . . . . . . . Default
 Adapter speed  . . . . . . . . 16 Mbits/sec





 Cmd7-End      Cmd8-Help     Cmd15-Update      Cmd16-Restart      Roll-Page
 ------------------------------------------------------------------------------
                                   CNTLCMPR
                        Update System Communications

    1. Display specific line status
    2. Communications configuration parameters
    3. Display station communications

 Ready for option number or command


                                                          COPR IBM Corp. 1986
```

According to the previous display, the adapter address has the value of Default. This means that the adapter address is that of the burned-in address of the token-ring adapter. This minimizes the chances of a duplicate address within a customer enterprise. If you want to assign an address to the token-ring adapter instead of using the burned-in address, you can run the **SETCOMM** procedure as follows:

1. Sign on to the SSP machine console. Make sure your SSP machine is dedicated before doing the next step.

2. In this example, we assign line 10 a network address of 400000043601. To do this, run SETCOMM at the command line and press HELP. Fill in the parameters as follows:

```
                              SETCOMM PROCEDURE                    Optional-*

              Sets the communications configuration parameters

  Line number . . . . . . . . . . . . . . . . . . . . . . . . .  1-10  10
  Line type . . . . . . . SHM,MULTCONT,MULTTRIB,NONSWTCH,SWITCHED
  Use system clocking facility  . . . . . . . . . . CLOCK,NOCLOCK
  NRZI data encoding  . . . . . . . . . . . . . . . . NRZI,NONRZI
  Use continuous carrier feature  . . . . . . . . CONCAR,NOCONCAR
  Use non-U.S. answer tone  . . . . . . . . . . . . . TONE,NOTONE
  Use autocall separator characters . . . . . . . . . . SEP,NOSEP
  Use autocall end-of-number characters . . . . . . . . EON,NOEON
  Primary SDLC time-out value . . . . . . . . . . . . . . . 05-80
  Number of primary SDLC error retries  . . . . . . . . . . . 1-5
  Modem . . . . . . . . . . . . . . . . .  IBMLPDA,IBMWRAP,NONIBM
  X.25 support  . . . . . . . . . . . . . . . . . . . . X25,NOX25
  Secondary SDLC inactivity time-out value . . . . . . . . . 0-20
  IBM Token-Ring Network adapter address
    override  . . . . . . . . . 400000000000 - 7FFFFFFFFFFF,R   400000043601
  V.25bis support . . . . . . . . . . . . . . . . V25BIS,NOV25BIS



  Cmd3-Previous menu
```

3. Press Enter.
4. At the command line, type IPL and press Enter.
5. When the SSP machine has been started, sign on to the SSP machine.

If the token-ring adapter speed as shown on the D H display is not correct, you may use the procedure CHGSYSVL to change the speed. To get to the following display, type CHGSYSVL at the command line and press the HELP key.

```
                            CHGSYSVL PROCEDURE                    Optional-*

                      Changes the specified system value


 System value to change  . . . . . . . . . . .  DEVMAP,DISKSIZE,
        DISKWRT,LANGUAGE,LINESPD,MAXSTNS,SYSTIME,TAHEAD,WORLDTRD  LINESPD

 Line number . . . . . . . . . . . . . . . . . . . . . . .  9,10  10

 Line speed in megabits per second . . . . . . . . . . . .  4,16  4









 Cmd2-Page back
                                                        COPR IBM Corp. 1995
```

On the previous display, we want to change the line speed for line 10 to 4 megabits. Press Enter after typing the value of the fields appropriately.

If the line speed and adapter address have been changed successfully, the D H display should look as follows:

```
                        SYSTEM COMMUNICATIONS CONFIGURATION LINE 10        #1

 Hardware configuration . . . . IBM TRN
 Adapter address  . . . . . . . 400000043601
 Adapter speed  . . . . . . . .  4 Mbits/sec





 Cmd7-End      Cmd8-Help     Cmd15-Update      Cmd16-Restart      Roll-Page
 ------------------------------------------------------------------------------
                                   CNTLCMPR
                         Update System Communications

    1. Display specific line status
    2. Communications configuration parameters
    3. Display station communications

 Ready for option number or command


                                                          COPR IBM Corp. 1986
```

Note that depending on the token-ring technology used in the token-ring LAN adapters of non-AS/400 systems on the LAN, you may experience problems if some the LAN is attempting to operate at 16M bits per second and the older 4M bit adapters are in use. Usually setting everything to 4M bps enables the LAN to operate successfully, though at a less-than-desired performance level.

You need to check the system value MAXSTNS to determine the number of allowed connections to the SSP through the token-ring link by running DSPSYSVL at the command line. The following display is shown.

```
  SYSTEM VALUES         DATE 11/19/95          TIME 18.18

TAHEAD    OFF
DISKWRT   ASYNC
DISKSIZE  200
WORLDTRD  OFF
LANGUAGE  10
LINESPD   10     4
MAXSTNS   10     32
DEVMAP    LINE10 CMN02

*****                     END OF SYSTEM VALUES                     *****
```

On the preceding display, line 10 has a default limit of **32 maximum** allowed number of connections. If you want to change this limit to **50** to match the maximum number of PCs parameter on CNFIGICF display 19.0 (PC Support/36 Subsystem Member definition), you need to do the following:

1. Disable the communications line whose maximum number of stations is to be changed by using the DISABLE command.
2. Type CHGSYSVL at the command line and press the Help key. The following display is shown. In this example, we want to change the maximum number of connections on line 10 to a total of 50. Type the parameters as appropriate. When completed, press Enter to save your settings.

```
                              CHGSYSVL PROCEDURE                  Optional-*

                        Changes the specified system value


System value to change  . . . . . . . . . . .  DEVMAP,DISKSIZE,
       DISKWRT,LANGUAGE,LINESPD,MAXSTNS,SYSTIME,TAHEAD,WORLDTRD  MAXSTNS

Line number . . . . . . . . . . . . . . . . . . . . . . .  1-10  10

Maximum number of stations  . . . . . . . . . . . . . . . 1-254  50









Cmd2-Page back
                                                        COPR IBM Corp. 1995
```

3. Re-enable the line for the new maximum number of stations to take effect.

7.4 M36 ICF Configuration

A PC Support/36 subsystem member has to be set up. Note that a PC Support/36 subsystem member does not need to have a line member set up.

1. At the command line, run CNFIGICF to create a PC Support/36 subsystem. Type the parameters for CNFIGICF according to the following display:

```
 1.0           SSP-ICF CONFIGURATION MEMBER DEFINITION


1. Configuration member name  . . . . . . . . . . . . . . . . . .  PCS36SBS

2. Library name . . . . . . . . . . . . . . . . . . . . . . . . .  #CNFGLIB

3. Select one of the following:
      1. Create new member
      2. Edit existing member
      3. Create new member from existing member
      4. Remove a member
      5. Review a member
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . . 1-5  1





Cmd7-End     Cmd19-Cancel
```

2. Press Enter.

```
 2.0              SSP-ICF CONFIGURATION MEMBER TYPE           PCS36SBS


Select one of the following options:
      1. Intra
      2. BSC
      3. SNA
      4. Async
      5. PC Support/36

   Option: 5









Cmd3-Previous display       Cmd5-Restart CNFIGICF
                            Cmd19-Cancel                COPR IBM Corp. 1986
```

3. Choose option 5 to create a PC Support/36 subsystem member and press Enter.
4. Type in the number of PCs you want to support on the link. This number should correspond to the number of maximum stations (MAXSTNS) system value that you defined earlier using CHGSYSVL. If you cannot remember this value, use the DSPSYSVL procedure to display it.

```
19.0              PC SUPPORT/36 SUBSYSTEM MEMBER              PCS36SBS    #1


1. Maximum number of PCs . . . . . . . . . . . . . . . . . . 1-50  50

2. Source service access point (SSAP) value . . . . . . . . . .  0C


Cmd5-Restart CNFIGICF           Cmd7-End
Cmd19-Cancel                                            COPR IBM Corp. 1986
```

You may leave the SSAP value as the default and press Cmd 7 twice to save your settings and exit CNFIGICF.

7.5 PC Configuration

The PC needs to have a token-ring adapter and IBM LAN Support Program installed. You may also need to have your token-ring adapter's driver diskette on hand if the driver program for the adapter you are using is not available within LAN Support Program. Generally, you need to have the driver diskette if you have a non-IBM token-ring adapter installed.

In this example, we are installing an IBM 16/4 Token-Ring adapter/A into a PS/2 Model 70.

To install the LAN Support Program, do the following:

1. Insert the LAN Support Program diskette into your A drive. Switch your DOS drive letter to A. Type in DXMAID at the DOS prompt and press Enter four times. The following display is shown:

```
                    LAN Support Program Installation Aid

Use the arrow keys to move between fields. Make changes as needed to the
information below; then, press Enter.

 Setup

 Use the Space bar to toggle between 'Yes' and 'No':

    Are you updating an existing configuration?            Yes
    Do you have driver diskettes?                          No

 Type changes as needed to the information below:

    Target for LSP:                                  C:\LSP

    CONFIG.SYS to update:                            C:\CONFIG.SYS

    AUTOEXEC.BAT to update:                          C:\AUTOEXEC.BAT

F1=Help   F3=Exit   F7=Previous panel   Enter=Continue
```

Change the driver diskettes prompt from Yes to No and press Enter. We do not need driver diskettes since the driver program for the IBM 16/4 Token-Ring Adapter/A is contained in the LAN Support Program.

If you have installed a non-IBM token-Ring adapter, you may need to leave the driver diskette prompt as Yes and use the prompts on the displays that follow to install the adapter's driver program.

```
                    LAN Support Program Installation Aid

Press F4 to install the drivers shown below. To change the drivers, use the
arrow keys to move to the desired field; then, press F6.

 Primary Adapter: ADAPTER DRIVER
    IBM Token-Ring Adapters (DXMC0MOD.SYS)

 Primary Adapter: PROTOCOL DRIVERS


 Alternate Adapter: ADAPTER DRIVER


 Alternate Adapter: PROTOCOL DRIVERS


F1=Help   F3=Exit   F4=Install   F5=Change parameters
F6=Driver choices   F9=Restart setup
```

2. Leave the Primary Adapter Driver as IBM Token-Ring Adapters (DXMC0MOD.SYS). Press the F4 key to install the driver.
3. At the completion of the installation of LAN Support Program, the following display is shown:

```
DOS      Ctrl+Esc = Window List                          Type HELP = help

 Information
 Installation complete.

 To activate this configuration, make sure there is no diskette in
 drive A:, unless you plan to run LSP from diskette; then, press
 Ctrl-Alt-Del to restart the computer.

 Refer to the LSP User's Guide if any error messages are displayed.

D:\LSP135>
```

Restart your PC for the LAN Support Program to be loaded.

After successful installation, you should have two required drivers in CONFIG.SYS:

```
DEVICE=C:\LSP\DXMAOMOD.SYS
DEVICE=C:\LCP\DXMC0MOD.SYS 400030000241
```

The numbers following the DXMC0MOD.SYS device driver were manually edited to customize the PC's token-ring adapter network address. If you do not put an address next to this driver, then the token-ring adapter's burned-in address is used instead.

Install PC Support/36 on the PC by doing the following:

1. Insert the PC Support/36 Installation diskette into the A drive on your PC.
2. At the DOS prompt, run the command A :INSTALL F to install PC Support/36 onto your fixed (hard) disk. The following display is shown:

```
                    SYSTEM/36 - PC ATTACHMENT

   Select Type of attachment

     1.  Emulation
     2.  IBM Token-Ring Network
     3.  5364 System Console

   Select ===>  2

-----------------------------------------------------------------------
   Enter  Esc=Quit
                                     Version 04.00 (c) IBM Corp. 1987
```

   Select option 2 and press Enter.

3. You may leave the fixed drive name and the directory name as default or change them according to your requirements.

```
                    FIXED DISK DRIVE AND DIRECTORY

   Enter the drive and directory names in which the PC Support/36 programs
   are to be installed. To specify the root directory, enter blanks.

   If the directory does not exist, it will be created in the root directory.

     Fixed Disk drive name . . . . . . . . . . . . C

     PC Support/36 directory name  . . . . . . . . PCS36



---------------------------------------------------------------------------
    Enter  Esc=Quit
```

Press Enter.

4. Type the PC location name. This name must be unique from all other PCs attached to this SSP machine on the token-ring link. The System/36 link name is an arbitrary name you use to refer to the SPP machine that you are connecting to. The link name is not used to match parameters anywhere else.

   The token-ring adapter address is that of the SSP machine configured using SETCOMM earlier. By default, the token-ring network program name is TOKREUI.COM. However, since we are using a token-ring card that works with LAN Support Program that loads its programs using CONFIG.SYS and does not require TOKREUI.COM, you may change the program name prompt to COMMAND.COM. The installation program then locates COMMAND.COM in your C drive and inserts command lines appropriately into the LINK36.BAT file. The command lines associated with COMMAND.COM in LINK36.BAT do not impact the way PC Support/36 works.

```
                         IBM TOKEN-RING NETWORK



  Enter the values below as specified on the PC Support/36 install forms.


    PC location name  . . . . . . . . . . . . . . WWCHIA
    System/36 link name . . . . . . . . . . . . . IBMM3601
    IBM Token-Ring Network adapter address  . . . 400000043601
    IBM Token-Ring Network program name . . . . . COMMAND.COM



---------------------------------------------------------------------------
    Enter  Esc=Quit
                                          Version 04.00 (c) IBM Corp. 1987
```

Press the Enter key after you type the parameters.

5. Leave the parameters in the next display as default unless you want to install the Organizer, Shared Folders, or Work Station Feature.

   In our example, we want to install the Work Station Feature to provide us with 5250 emulation capability.

```
                          ADDITIONAL PROGRAM SUPPORT

  Will you be using:

    Organizer? . . . . . . . . . . . . (1=Yes, 0=No)  0

    Shared folders facility? . . . . . (1=Yes, 0=No)  0

    Work Station Feature . . . . . . . (1=Yes, 0=No)  1



---------------------------------------------------------------------------
    Enter  Esc=Quit
```

Press Enter.

6. The next display gives you a list of programs that are copied from the installation diskette into your fixed drive.

```
                            INSTALLATION FILE COPY

   The following files will be copied from the PC Support/36 install
   diskette to the specified directory.  Press Enter to start.


        CFGVDSK.COM
        STARTRTR.EXE
        ITRNRTR.RXR
        STOPRTR.EXE
        VDSK.SYS
        FSDDX.SYS
        FSDD.SYS



---------------------------------------------------------------------------
    Enter  Esc=Quit
```

Press Enter to initiate the copying process.

7. At the conclusion of the copying process, a completion display is shown. Follow the instructions on the display.

```
                              INSTALLATION COMPLETE


   The PC Support/36 installation is now complete.

   You must now do one of the following:

   1) Remove the PC Support/36 install diskette from drive A.
      Press the Ctrl-Alt-Del keys to restart your personal computer.
      After the personal computer is restarted, type:

                            C:\PCS36\LINK36

      Note:  You may want to add this command to your AUTOEXEC.BAT file

                                        OR

   2) Press Enter to end.


 ---------------------------------------------------------------------------
    Enter  Esc=Quit
```

This completes the installation steps. You should have the following entries in the PC's CONFIG.S36 file in PCS36:

```
SUPPORT/36
RTYP ITRN
VDSK I,#IWPCLD2,3
VDSK H,#IWPCLD4,3
TRLN WWCHIA
TRLI IBMM3601,400000043601
```

The PC's CONFIG.SYS file should have the following entry:

```
DEVICE=C:\PCS36\VDSK.SYS
```

If you chose to install Shared Folders function as well, you should also have the following entries in the PC's CONFIG.SYS:

```
DEVICE=C:\PCS36\FSDDX.SYS
DEVICE=C:\PCS36\FSDD.SYS
```

The PC's LINK36.BAT file should look as follows:

```
C:
CD \
COMMAND.COM
C:
CD /PCS36
STARTRTR.EXE
ECHO OFF
IF ERRORLEVEL 20 GOTO EXIT
ECHO ON
CFGVDSK.COM
ECHO OFF
IF ERRORLEVEL 20 GOTO EXIT
ECHO ON
H:
WSF.EXE /T
ECHO OFF
IF ERRORLEVEL 20 GOTO EXIT
I:
:EXIT
ECHO ON
```

7.6 Operation

You have to run ENABLE to start the PC Support/36 subsystem on the SSP machine. Note that you may include the ENABLE procedure in either your #STRTUP1 or #STRTUP2 procedure in #LIBRARY to automatically start up the PC Support/36 subsystem at IPL.

```
                              ENABLE PROCEDURE                  Optional-*

                  Enables an Interactive Communications Feature,
                  MSRJE, or 3270 device emulation subsystem


 Subsystem configuration name  . . . . . . . . . . . . . . . . . .  PCS36SBS

 Name of library . . . . . . . . . . . . . . . . . . . . . . . . .  #CNFGLIB

 Line number . . . . . . . . . . . . . . . . . . . . . . .  1-10  10         *

 Display values in effect
   for this subsystem  . . . . . . . . . . . . . . . . NOSHOW,SHOW  NOSHOW

 Remote location name  . . . . . . . . . . . . . . . . . . . . .            *

 Line member name  . . . . . . . . . . . . . . . . . . . . . . .            *




 Cmd3-Previous menu    Cmd4-Type on job queue                COPR IBM Corp. 198
```

To check the status of the PC Support/36 subsystem, run the command D I at the command line. After PC Support/36 has been successfully started at the PC as well, the display should look as follows:

```
 Complete                        SUBSYSTEM STATUS                            #1

CONFIG   CONFIG    LINE  LOCATION   STATUS       COMMUNI-   --NO. OF SESSIONS--
NAME     TYPE            NAME                    CATING     EVOKED     ACQUIRED
PCS36SBS PCS/36     10   WWCHIA     Enabled        Y        ---          ---





  Cmd7-End      Cmd8-Help     Cmd15-Update      Cmd16-Restart      Roll-Page
-------------------------------------------------------------------------------
                                    CNTLLINE
                         Start or stop communication lines
    1. Start a subsystem
    2. Stop a subsystem                 6. Control APPC
    3. Start monitoring a BSC line      7. Control alert support
    4. Stop monitoring a BSC line

 Ready for option number or command


                                                          COPR IBM Corp. 1985
```

At the PC, start PC Support/36 by running LINK36.BAT. When you are prompted for a USERID, type the USERID you would normally use to sign on to the SSP machine. Press Enter. At the next prompt, type the password for your USERID and press Enter. The rest of the PC Support/36 functions in LINK36.BAT should then start up.

```
C:\PCS36\LINK36

PC Support/36
IBM Token Ring Network Router
Version 05.00 (c) IBM Corp. 1987

Initiating Router . . .
Router successfully initiated

 . . . Processing TRLI entry : IBMM3601,400000043601
Enter your user ID
WWCHIA
Enter your password
```

Note that for a PC Support/36 type ICF link, there is no need to set up an *NULL USERID. The *NULL USERID is, however, needed for other APPC link types.

7.7 Matching Parameters

```
M36                                     PC
---                                     --
CHGSYSVL                                CONFIG.SYS
        LINESPD    4                    DEVICE=C:\LSP\DXMAOMOD.SYS
                                        DEVICE=C:\LSP\DXMCOMOD.SYS 400030000241
SETCOMM
       TRN Address 400000043601 ──► 1


CNFIGICF
 19.0 PC Support/36 Subsystem Member
      SSAP value      0C ──────► 2      CONFIG.S36
                                        RTYP ITRN
                                        TRLN WWCHIA
                                        TRLI IBMM3601,400000043601
                                     1 ◄──────────────────┘        │
                                     2 ◄──────────────────────────┘

Note for 2 : The default SAP value for the TRLI statement in CONFIG.S36 is
             0C. If there is a need to change the SAP value to 04 for that
             statement in CONFIG.S36, the format should be as follows:

                        TRLI IBMM3601,400000043601,04

             for a SAP value of 04, for example.
```

Chapter 8. Client Access/400 for DOS Ext to M36 on Token-Ring

This chapter covers the configuration steps necessary to set up Client Access/400 for DOS on a PC in a token-ring network to access the SSP machine.

Note: In this chapter, ″M36″ is used as an abbreviation for ″SSP machine.″

This configuration may be used for the following reasons:

- DOS is loaded on the PC.
- DOS Extended capabilities of Client Access.
- GUI interface and Windows capabilities of Client Access.
- The PC is used for any of the following Client Access functions:
  1. Shared folders
  2. Organizer
  3. File transfer
  4. Virtual print
  5. Text assist
  6. Workstation Function
  7. Messaging

8.1 System Requirements

The following are required on the Model 436:

1. OS/400 with an SSP machine configured
2. A token-ring adapter
3. PC Support/36 base
4. PC Support/36 IBM Token-Ring network support
5. PC Support/36 Workstation feature
6. Base communications support
7. Extended communications support
8. LAN communications support

The following are required on the PC:

1. A token-ring adapter and its driver diskette
2. IBM LAN Support Program Version 1.3 (Product Number 93F2456)
3. Client Access/400 for DOS with Ext Memory

Note: If you have Client Access/400 - PC Tools folder code installed in OS/400 (5716XA1, Option 1, Feature 5050), you may get a copy of IBM LAN Support. Program from the QIWSTOOL shared folder. The files related to the IBM LAN Support Program in the QIWSTOOL shared folder start with the letters LSP. Display the contents of LSP135.DOC to find out how to extract LAN Support Program files. If you do not have a copy of PC Support/400, you can purchase copies of IBM LAN Support Program from your PC vendors.

8.2 M36 Configuration

Refer to 7.2, “M36 Configuration” on page 150 for the configuration steps.

8.3 M36 Token-Ring Configuration

Refer to 7.3, “M36 Token-Ring Configuration” on page 153 for the configuration steps.

8.4 M36 ICF Line Configuration

You must use CNFIGICF to configure the token-ring link to the PC.

1. First we need to create a line member. To do this, run CNFIGICF on the command line and on display 1.0, fill in the Configuration member name, Library name that you want to put your member into, and select option 1 to create a new member.

```
 1.0            SSP-ICF CONFIGURATION MEMBER DEFINITION                    #1


1. Configuration member name  . . . . . . . . . . . . . . . . . .  TRN1LINE

2. Library name . . . . . . . . . . . . . . . . . . . . . . . . .  #CNFGLIB

3. Select one of the following:
      1. Create new member
      2. Edit existing member
      3. Create new member from existing member
      4. Remove a member
      5. Review a member
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . 1-5  1





Cmd7-End     Cmd19-Cancel
```

   Press Enter.

2. On display 2.0, select option 3 to create a SNA member.

```
 2.0                SSP-ICF CONFIGURATION MEMBER TYPE           TRN1LINE    #1


Select one of the following options:
      1. Intra
      2. BSC
      3. SNA
      4. Async
      5. PC Support/36

   Option: 3









Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

3. On display 4.0, select option 4 to create an SNA/IBM Token-Ring Network line member and specify that APPC or APPN is used.

```
  4.0                 SNA CONFIGURATION MEMBER TYPE             TRN1LINE    #1


 1. SNA member type  . . . . . . . . . . . . . . . . . . . . 1-4  4
       1. SNA subsystem member
       2. SNA/SDLC line member
       3. SNA/X.25 line member
       4. SNA/IBM Token-Ring Network line member


 2. Will APPC or APPN be used? . . . . . . . . . . . . . . . . Y,N  Y





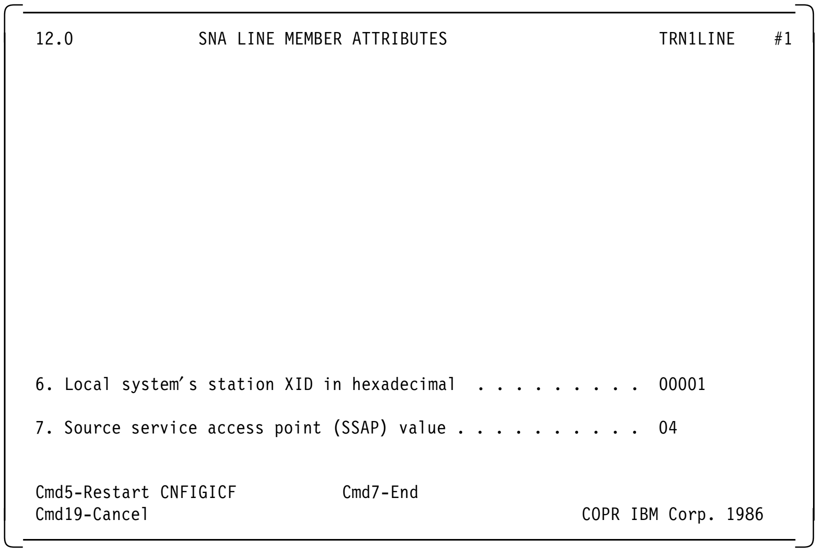




 Cmd3-Previous display       Cmd5-Restart CNFIGICF
 Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

4. On display 12.0, specify the Local system's station XID as 00001 and the SSAP as 04. It is important that the SSAP value must be set to 04.



```
12.0             SNA LINE MEMBER ATTRIBUTES                    TRN1LINE    #1













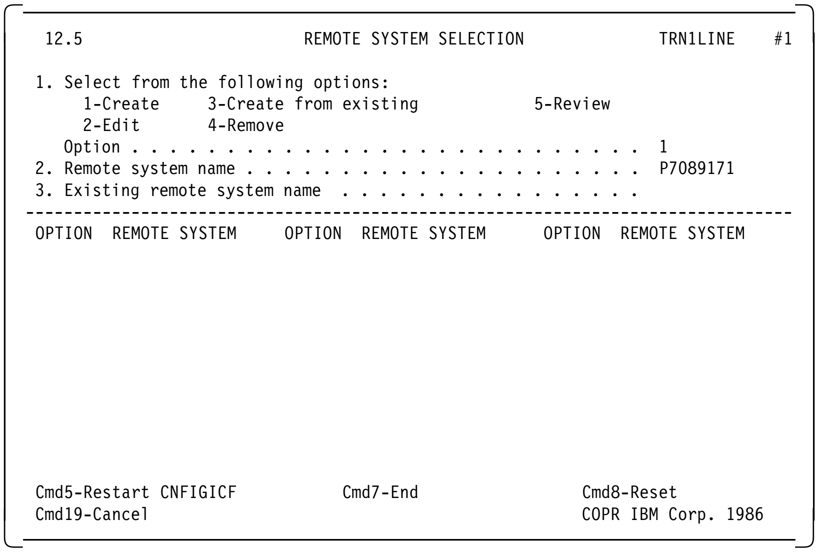

6. Local system's station XID in hexadecimal  . . . . . . . . .  00001

7. Source service access point (SSAP) value . . . . . . . . . .  04


Cmd5-Restart CNFIGICF           Cmd7-End
Cmd19-Cancel                                           COPR IBM Corp. 1986
```

Press Enter.

5. On display 12.5, we create a remote system entry for the PC as follows:



```
 12.5                       REMOTE SYSTEM SELECTION            TRN1LINE    #1

1. Select from the following options:
     1-Create     3-Create from existing            5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . .  1
2. Remote system name . . . . . . . . . . . . . . . . . . . . .  P7089171
3. Existing remote system name  . . . . . . . . . . . . . . . .
--------------------------------------------------------------------------------
OPTION  REMOTE SYSTEM     OPTION  REMOTE SYSTEM      OPTION  REMOTE SYSTEM










Cmd5-Restart CNFIGICF           Cmd7-End                 Cmd8-Reset
Cmd19-Cancel                                           COPR IBM Corp. 1986
```

6. Press Enter on display 12.5 to get the next display.

7. On display 13.0, the PC should be of the type Peer. The Remote system's block ID must be set to 050. The PC's station XID is set to 00060 in this example.

```
13.0                REMOTE SYSTEM ATTRIBUTES                    TRN1LINE    #1

                      Remote system P7089171
1. Remote system type . . . . . . . . . . . . . . . . . . . . . . . 2
  1-Host              2-Peer



3. Remote system's block ID in hexadecimal  . . . . . . . . . . . 050

4. Remote system's station XID in hexadecimal . . . . . . . . . . 00060









Cmd5-Restart CNFIGICF           Cmd7-End
Cmd19-Cancel                                            COPR IBM Corp. 1986
```

8. On display 13.5, enter the PC's token-ring adapter address into the Remote adapter address parameter. Similar to the SSAP value on display 12.0, the PC's DSAP value must also be set to 04 here.

```
13.5                        REMOTE SYSTEM ATTRIBUTES            TRN1LINE    #1

       Remote system P7089171

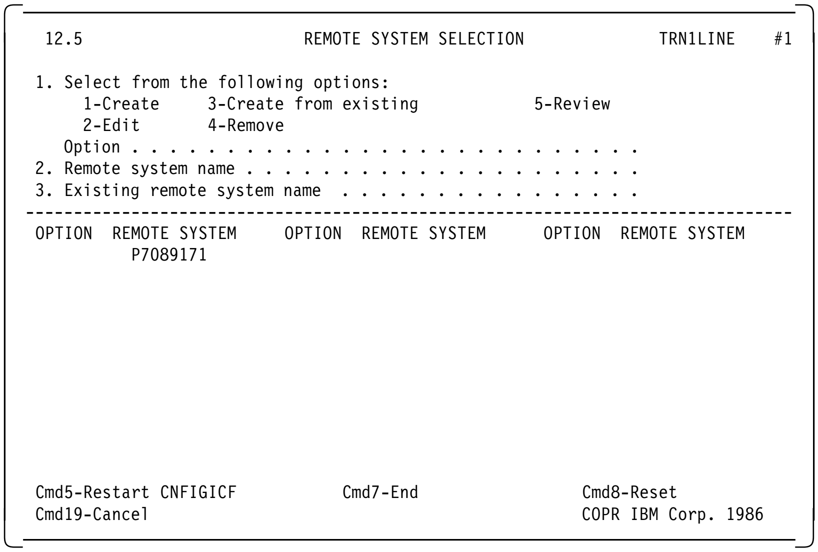
1. Remote adapter address  . . . . . . . . . . . . . . . . . . . 400030000241

2. Destination service access point (DSAP) value . . . . . . . 04 .

Cmd5-Restart CNFIGICF           Cmd7-End
Cmd19-Cancel                                            COPR IBM Corp. 1990
```

Press Enter.

9. This brings us to display 12.5 where we see the PC location name as we created it.



```
 12.5                      REMOTE SYSTEM SELECTION              TRN1LINE    #1

1. Select from the following options:
     1-Create     3-Create from existing            5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . .
2. Remote system name . . . . . . . . . . . . . . . . . . . . .
3. Existing remote system name  . . . . . . . . . . . . . . . .
--------------------------------------------------------------------------------
OPTION  REMOTE SYSTEM     OPTION  REMOTE SYSTEM      OPTION  REMOTE SYSTEM
          P7089171












Cmd5-Restart CNFIGICF           Cmd7-End                 Cmd8-Reset
Cmd19-Cancel                                             COPR IBM Corp. 1986
```

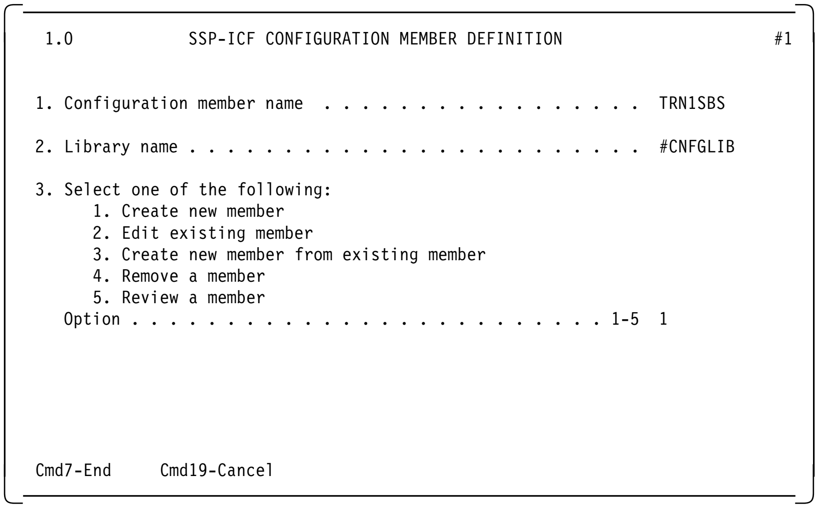
Press Cmd 7 three times to exit CNFIGICF.

This completes the setup of the token-ring line member.

8.5 M36 Subsystem Configuration

You must use CNFIGICF to configure a subsystem member that defines the link to the PC.

1. Type CNFIGICF at the command line and press Enter to get display 1.0. On that display, type the name of the subsystem member name and its library. Then choose option 1 to create a new member.



```
 1.0            SSP-ICF CONFIGURATION MEMBER DEFINITION                     #1


1. Configuration member name  . . . . . . . . . . . . . . . . .  TRN1SBS

2. Library name . . . . . . . . . . . . . . . . . . . . . . . .  #CNFGLIB

3. Select one of the following:
      1. Create new member
      2. Edit existing member
      3. Create new member from existing member
      4. Remove a member
      5. Review a member
   Option . . . . . . . . . . . . . . . . . . . . . . . . . 1-5  1






Cmd7-End     Cmd19-Cancel
```

2. On display 2.0, select option 3 for SNA.

```
 2.0              SSP-ICF CONFIGURATION MEMBER TYPE           TRN1SBS     #1


Select one of the following options:
      1. Intra
      2. BSC
      3. SNA
      4. Async
      5. PC Support/36

   Option: 3









Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

3. On display 4.0, select option 4 to create an SNA subsystem member. Press Enter.

```
 4.0                SNA CONFIGURATION MEMBER TYPE             TRN1SBS     #1


1. SNA member type  . . . . . . . . . . . . . . . . . . . . 1-4  1
      1. SNA subsystem member
      2. SNA/SDLC line member
      3. SNA/X.25 line member
      4. SNA/IBM Token-Ring Network line member









Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

4. On display 21.0, select option 6 to define an APPC type link.

```
21.0              SNA SUBSYSTEM MEMBER SELECTION                TRN1SBS     #1



1. Select subsystem type from the following options:
      1. Peer
      2. SNA Upline
      3. SNA 3270
      4. Finance
      5. SNA MSRJE
      6. APPC
      7. APPN
   Option . . . . . . . . . . . . . . . . . . . . . . . . . 1-7  6









Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

5. A new parameter is shown on display 21.0. Type the line member name that we have already created.

```
21.0              SNA SUBSYSTEM MEMBER SELECTION                TRN1SBS     #1



1. Select subsystem type from the following options:
      1. Peer
      2. SNA Upline
      3. SNA 3270
      4. Finance
      5. SNA MSRJE
      6. APPC
      7. APPN
   Option . . . . . . . . . . . . . . . . . . . . . . . . . 1-7  6


2. Line member name . . . . . . . . . . . . . . . . . . . . . . TRN1LINE




                            Cmd5-Restart CNFIGICF
                            Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

6. On display 22.0, type the name of your local location.

```
22.0              SUBSYSTEM MEMBER DEFINITION                  TRN1SBS     #1

1. Local location name  . . . . . . . . . . . . . . . . . . . .  IBMM3601



Cmd5-Restart CNFIGICF          Cmd7-End
Cmd19-Cancel                                            COPR IBM Corp. 1986
```

Press Enter.

7. On display 29.0, we create a remote location that is linked to the remote system that we created in the line member definition earlier.

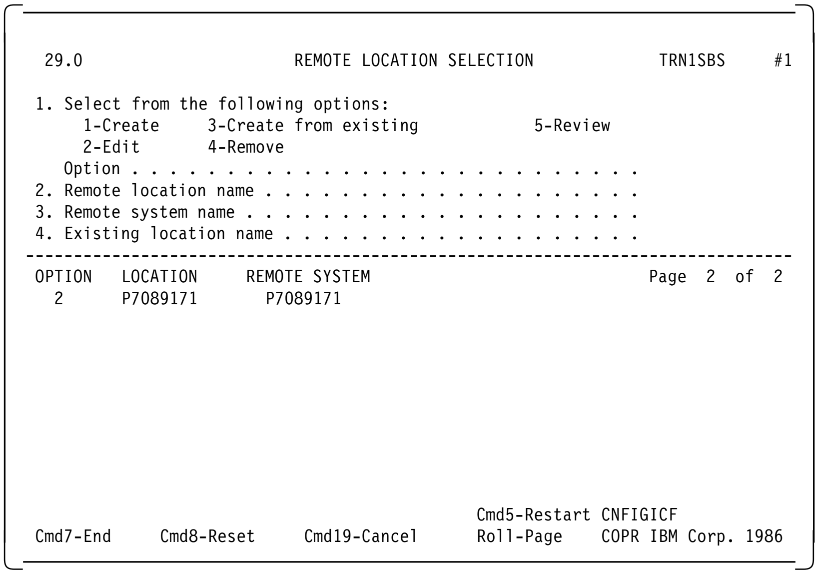
```
 29.0                     REMOTE LOCATION SELECTION            TRN1SBS     #1

1. Select from the following options:
     1-Create     3-Create from existing           5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . . .  1
2. Remote location name . . . . . . . . . . . . . . . . . . . . .  P7089171
3. Remote system name . . . . . . . . . . . . . . . . . . . . . .  P7089171
4. Existing location name . . . . . . . . . . . . . . . . . . . .
-------------------------------------------------------------------------------
OPTION   LOCATION     REMOTE SYSTEM                              Page  1  of  1
                        P7089171



Cmd4-Display remote location list            Cmd5-Restart CNFIGICF
Cmd7-End     Cmd8-Reset     Cmd19-Cancel      Roll-Page    COPR IBM Corp. 1986
```

8. Next we need to create a session group with the name QPCSUPP for the PC location P7089171. This is because the PC is running Client Access/400 and uses QPCSUPP mode. OS/400 provides this QPCSUPP mode, but this mode (SSP session group) needs to be added to SSP. To do this, select option 2 next to the PC location.



```
 29.0                     REMOTE LOCATION SELECTION            TRN1SBS     #1

1. Select from the following options:
     1-Create     3-Create from existing           5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . .
2. Remote location name . . . . . . . . . . . . . . . . . . . .
3. Remote system name . . . . . . . . . . . . . . . . . . . . .
4. Existing location name . . . . . . . . . . . . . . . . . . .
-------------------------------------------------------------------------------
OPTION   LOCATION     REMOTE SYSTEM                             Page  2  of  2
  2      P7089171       P7089171





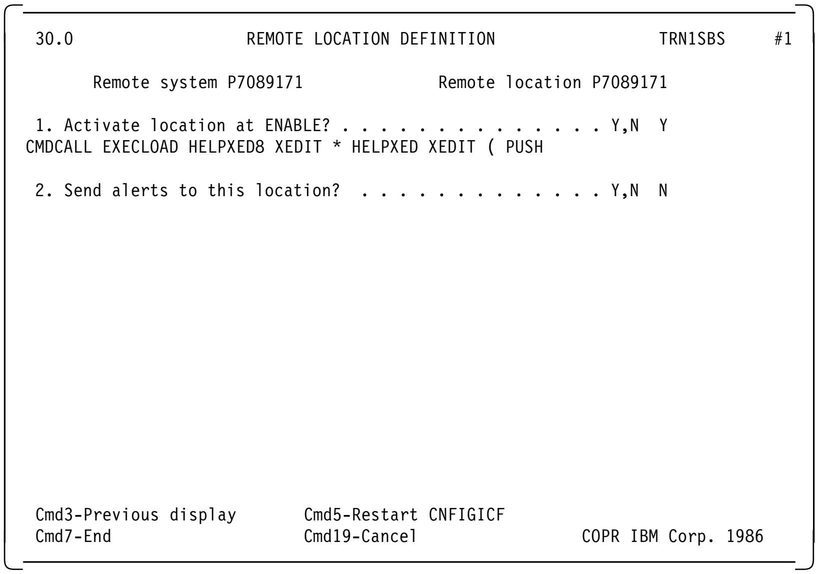





                                              Cmd5-Restart CNFIGICF
Cmd7-End     Cmd8-Reset     Cmd19-Cancel      Roll-Page    COPR IBM Corp. 1986
```

Press Enter.

9. Take the default values for the parameters on display 30.0.



```
30.0                 REMOTE LOCATION DEFINITION                TRN1SBS     #1

      Remote system P7089171             Remote location P7089171

1. Activate location at ENABLE? . . . . . . . . . . . . . . . Y,N  Y
CMDCALL EXECLOAD HELPXED8 XEDIT * HELPXED XEDIT ( PUSH

2. Send alerts to this location?  . . . . . . . . . . . . . . Y,N  N














Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

10. Take the default values for the parameters on display 41.0.

```
41.0            APPC AND APPN LOCATION DEFINITION              TRN1SBS     #1

      Remote system P7089171             Remote location P7089171

1. Single-session location? . . . . . . . . . . . . . . . . . . Y,N  N

2. Stay operational?  . . . . . . . . . . . . . . . . . . . . . Y,N  Y



Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

11. On display 42.0, select option 1 to create a new Session group with the name QPCSUPP.

```
 42.0                     SESSION GROUP SELECTION              TRN1SBS     #1

      Remote system P7089171             Remote location P7089171

1. Select from the following options:
     1-Create     3-Create from existing           5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 1
2. Session group name . . . . . . . . . . . . . . . . . . . . . . . . QPCSUPP
3. Existing session group name  . . . . . . . . . . . . . . . . . .
4. Default session group name . . . . . . . . . . . . . . . . . . . *BLANK
-------------------------------------------------------------------------------
OPTION   SESSION GROUP
            *BLANK



Cmd3-Previous display       Cmd5-Restart CNFIGICF           Cmd7-End
Cmd8-Reset                  Cmd19-Cancel                    COPR IBM Corp. 1986
```

Press Enter.

```
 42.0                    SESSION GROUP SELECTION              TRN1SBS     #1

      Remote system P7089171             Remote location P7089171

 1. Select from the following options:
     1-Create     3-Create from existing           5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . .
 2. Session group name . . . . . . . . . . . . . . . . . . . . .
 3. Existing session group name  . . . . . . . . . . . . . . . .
 4. Default session group name . . . . . . . . . . . . . . . . .  *BLANK
-------------------------------------------------------------------------------
 OPTION   SESSION GROUP
            *BLANK
            QPCSUPP





 Cmd3-Previous display       Cmd5-Restart CNFIGICF          Cmd7-End
 Cmd8-Reset                  Cmd19-Cancel                   COPR IBM Corp. 1986
```

12. After the session group QPCSUPP has been created successfully, we may exit CNFIGICF by pressing Cmd 7 three times.

This completes the steps needed to create a subsystem member.

8.6 SSP Security

You need to create a null ID on the SSP machine using the following steps:

1. Sign on to the SSP machine using a master security user profile.
2. Run the SECEDIT USERID procedure on the command line. Press the Cmd5 key to enter the Add mode.
3. Type the parameters on the following display. Make sure that you enter four blanks as the password for this user ID.

```
                                SECEDIT USERID                          #1
                                                              Optional-*
            Edit the user profiles in the user identification file

      Mode: Add - Key in profile information and press Enter

 User ID  . . . . . . . . . . . . . . . . . . . . . . . . . .   *NULL
 Password . . . . . . . . . . . . . . . . . . . . . . . . . .
 Security classification  . . . . . . . . . . . . . . . M,S,O,C,D   D
 Service aid authority ?  . . . . . . . . . . . . . . . . . Y,N   N
 Badge number . . . . . . . . . . . . . . . . . 00000000-99999999              *
 Comment  . . . . . . . . . . . . . . . . . . . . . . . . . .                  *





 Roll keys-Page              Cmd2-Scan             Cmd3-Restart
                             Cmd5-Add mode         Cmd6-Show passwords
 Cmd7-End                    Cmd9-Additional information
```

4. Press Enter twice after typing the values in the previous display.

This completes setting up the null user ID.

8.7 PC Configuration

The PC needs to have a token-ring adapter and IBM LAN Support Program installed.

Refer to 7.2, “M36 Configuration” on page 150 on how to install IBM LAN Support Program.

Install Client Access/400 for Extended DOS on the PC. Use the following parameters when prompted:

```
                    CA/400 Installation
                 (PC to AS/400 Connection)

Connection type                   : Local Area Network

PC Information
     PC Location name             : IBMNET.P7089171

System Information
     Name of system to connect to : IBMM3601
     System LAN Address           : 400030000241
```

After installation, you should have the following entries in the CONFIG.PCS file in the Client Access/400 directory on your PC.

```
RTYP ITRN
RTLN ITSCNET.P7089171
TRLI IBMM3601,400000043601
SFLR 1,I,,IBMM3601
```

8.8 PC Configuration for Windows

To configure the PC to run Client Access/400 for DOS Extended within a Windows environment, the following must be performed:

1. Install Client Access/400 for DOS Extended according to the previous instructions.
2. Startup Client Access in DOS. Make sure that the shared folders function is started as well.
3. At your PC DOS prompt, switch over to the QIWSFL2 shared folder on your I drive. Run CFGPCS and press Enter twice.
4. At the Client Access Configuration display, select to configure General Options for Client Access.
5. At the General Options for Client Access display, select to configure Microsoft Windows and DOS 5.0 Options.
6. At the Microsoft Windows and DOS 5.0 Options display, select the options as shown on the following display. Leave any other parameters not shown on this display as the default.

```
                    Microsoft Windows and DOS 5.0 Options
                                                                  More:
You may configure Client Access to run with Microsoft Windows,
the DOS 5.0 Task Swapper, or both.

Select options, press Enter.

  Run Client Access with Microsoft Windows.  1. Yes  *
                                             2. No

    AS/400 connection environment . . . . .  1. Microsoft Windows
                                             2. DOS  *

    Create Client Access/400 group. . . . .  1. Yes  *
                                             2. No

    Directory where Microsoft Windows is located
      {C:\WINDOWS\                                                 }

  Run Client Access with DOS 5.0
  Task Swapper. . . . . . . . . . . . . . .  1. Yes
                                             2. No   *

  Enter   Esc=Cancel   F1=Help   F3=Exit   Spacebar
```

Note: * - Selected option

7. Press F3 when you have completed the display. When you are prompted for the drive letter that your PC starts from, fill in that parameter appropriately. Press Enter.
8. Save your changes and exit. When you are prompted with a message that the files are copied to your PC local disk, press Enter to acknowledge the message.
9. When the copy completes, exit Client Access configuration. You may then re-start Client Access to run within Windows. All of the functions that you can run in DOS will run in Windows.

This completes the steps necessary for Client Access/400 for DOS Extended to run within Windows.

8.9 Operation

The subsystem on the M36 machine should be enabled using the ENABLE command according to the following display:

```
                 Enables an Interactive Communications Feature,
                 MSRJE, or 3270 device emulation subsystem


Subsystem configuration name  . . . . . . . . . . . . . . . . .  TRN1SBS

Name of library . . . . . . . . . . . . . . . . . . . . . . . .  #CNFGLIB

Line number . . . . . . . . . . . . . . . . . . . . . . .  1-10  10        *

Display values in effect
  for this subsystem  . . . . . . . . . . . . . . . . NOSHOW,SHOW  NOSHOW

Remote location name  . . . . . . . . . . . . . . . . . . . . .            *

Line member name  . . . . . . . . . . . . . . . . . . . . . . .            *



Cmd3-Previous menu    Cmd4-Put on job queue                COPR IBM Corp. 1986
```

To check the status of the subsystem, run D I at the command line.

```
 Complete                        SUBSYSTEM STATUS                              #1

CONFIG   CONFIG    LINE  LOCATION   STATUS       COMMUNI-   --NO. OF SESSIONS--
NAME     TYPE            NAME                    CATING     EVOKED     ACQUIRED
TRN1SBS  APPC       10   P7089171  Enabled          Y        ---          ---




  Cmd7-End      Cmd8-Help     Cmd15-Update      Cmd16-Restart      Roll-Page
-------------------------------------------------------------------------------
                                    CNTLLINE
                        Start or stop communication lines
    1. Start a subsystem
    2. Stop a subsystem                 6. Control APPC
    3. Start monitoring a BSC line      7. Control alert support
    4. Stop monitoring a BSC line

 Ready for option number or command


                                                          COPR IBM Corp. 1985
```

The subsystem should be at a Status of Enabled and should show Communicating - Y.

At the PC, start Client Access by running STARTPCS.BAT. When the common USERID prompt appears, do not type anything for the USERID prompt but press Enter instead. Also when the password for the common USERID is prompted for, just press Enter. This allows the SSP to assume the *NULL USERID for this link. If you are running Client Access/400 within Windows, you need to start Windows at this point.

8.10 Matching Parameters

```
M36                                     PC
---                                     --
CHGSYSVL                                CONFIG.SYS
        LINESPD    4                    DEVICE=C:\LSP\DXMAOMOD.SYS
                                        DEVICE=C:\LSP\DXMCOMOD.SYS 400030000241
SETCOMM                              3 <──────────────────────────────────────┘
       TRN Address 400000043601 ──► 1


CNFIGICF
  4.0 SNA/TRN Line member
┌──────────► TRN1LINE                    CONFIG.PCS
│                                        RTYP ITRN
│12.0 SNA Line                           RTLN ITSCNET.P7089171
│ 6.  XID Local in hex 00002          5 <──────────────────────┘
│ 7.  SSAP value       04
│                                        TRLI IBMM3601,400000043601
│12.5 Remote System                    4 <──────────┘          │
│ 2.  Name            P7089171 ──► 2                           │
│                                      1 <──────────────────────┘
│13.0 Remote System Attribute
│ 3.  Block ID in hex   050
│ 4.  XID remote in hex 00060
│
│13.5 Remote System
│ 1.  Adapt. Addr. 400030000241 ─► 3
│ 2.  DSAP value   04
│
│21.0 SNA Subsystem   TRN1SBS
│ 1.  Subsystem type  APPC
└─►2.  Line member     TRN1LINE


 22.0 Subsystem Member Definition
  1.  Local location name
                     IBMM3601 ──► 4

 29.0 Remote Location Selection
  2.  Remote loc. name P7089171──► 5
      Remote sys. name P7089171──► 2

 42.0 Session Group Selection
  2.  Session Group QPCSUPP
```

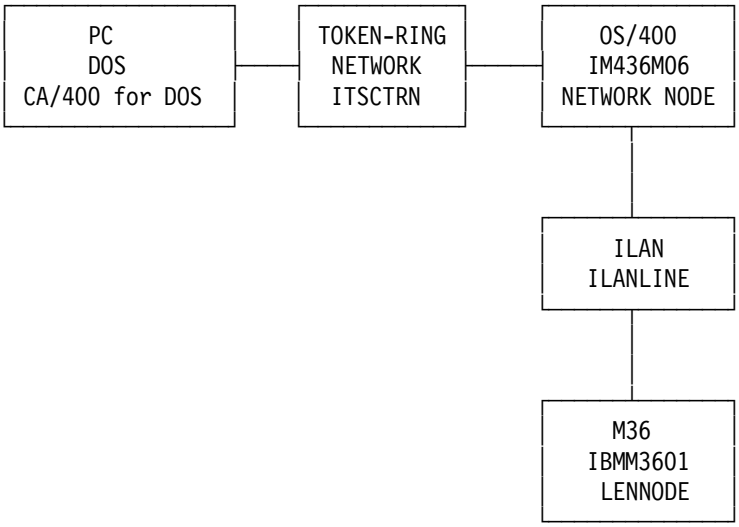
Chapter 9. Client Access/400 for DOS Ext to M36 through OS/400 on Token-Ring

This chapter covers the configuration steps necessary to set up Client Access/400 for DOS on a PC in a token-ring network to access OS/400 and the M36 machine through the ILAN. The OS/400 APPN routing capability is used by the PC to access the M36.

Note: In this chapter, ″M36″ is used as an abbreviation for ″SSP machine.″

This configuration may be used for the following reasons:

- DOS is loaded on the PC.
- DOS Extended capabilities of Client Access/400.
- GUI interface and Windows capabilities of Client Access/400.
- The PC is used for any of the following Client Access/400 functions to the SSP machine.
  1. Shared folders
  2. Organizer
  3. File transfer
  4. Virtual print
  5. Text assist
  6. Workstation Function
  7. Messaging
- All Client Access/400 functions are available to OS/400



9.1 System requirements

The following are required on the Model 436:

1. OS/400 with an SSP machine configured
2. A token-ring adapter
3. Client Access/400
4. PC Support/36 base
5. PC Support/36 Token-Ring network support
6. PC Support/36 workstation feature
7. Base communications support
8. Extended communications support
9. LAN communications support

The following are required on the PC:

1. A token-ring adapter and its driver diskette
2. IBM LAN Support Program Version 1.3 (Product Number 93F2456)
3. Client Access/400 for DOS with Ext Memory

Refer to 8.1, “System Requirements” on page 167 on how to get IBM LAN Support Program from the QIWSTOOL shared folder in OS/400.

9.2 OS/400 Definition for PC

The following CL program creates the definitions for the PC:

```
CRTLINTRN LIND(ITSCTRN) RSRCNAME(LIN051) ADPTADR(400000000436) +
            EXCHID(05600436) SSAP(04) AUTOCRTCTL(*NO) +
            TEXT('ITSC TR LINE')

CRTCTLAPPC CTLD(P7089171) LINKTYPE(*LAN) SWTLINLST(ITSCTRN) +
            RMTNETID(ITSCNET) RMTCPNAME(P7089171) +
            ADPTADR(400030000241) AUTOCRTDEV(*ALL) +
            TEXT('APPC CTL FOR P7089171')
```

The APPC controller may be automatically created by OS/400 if the CRTLINTRN parameter AUTOCRTCTL is set to *YES. However, for security reasons it is better to set this parameter to *NO to control access to the system.

The APPC controller parameter AUTOCRTDEV has been set to *ALL to automatically create the APPC device for the PC.

The virtual controller description is automatically created by OS/400. If the system value QAUTOVRT is set to a non-zero value and the system has not already automatically created this number of virtual devices, then the virtual device descriptions for the PC are automatically created.

9.3 OS/400 Definition for SSP

The default ILAN configuration may be used. Take note that the SSP machine is defined as a low entry network node in this example. This configuration also works if the SSP machine is defined as a network node with corresponding changes in the SSP CNFIGICF definitions. If the APPC controller definition has been deleted, you may use the following CL program to re-create the definition:

```
CRTCTLAPPC CTLD(QILANM3601) LINKTYPE(*ILAN) APPN(*YES) +
           RMTNETID(*NETATR) RMTCPNAME(IBMM3601) EXCHID(03E00001) +
           DSAP(08) SSAP(04) NODETYPE(*LENNODE) +
           TEXT('APPC CTL FOR IBMM3601')
```

The APPC device description is automatically created by OS/400.

9.4 M36 ILAN Line Definition

CNFIGICF is used to configure the line member for the link from OS/400 to the SSP machine through ILAN.

1. First we need to create a line member. To do this, run CNFIGICF at the command line. On display 1.0, fill in the Configuration member name, Library name that you want to put your member into, and select option 1 to create a new member.

```
 1.0          SSP-ICF CONFIGURATION MEMBER DEFINITION                    #1


1. Configuration member name  . . . . . . . . . . . . . . . . . . .  ILANLINE

2. Library name . . . . . . . . . . . . . . . . . . . . . . . . . .  #CNFGLIB

3. Select one of the following:
      1. Create new member
      2. Edit existing member
      3. Create new member from existing member
      4. Remove a member
      5. Review a member
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . . 1-5  1





Cmd7-End     Cmd19-Cancel
```

   Press Enter.

2. On display 2.0, select option 3 to create a SNA member.

```
 2.0                SSP-ICF CONFIGURATION MEMBER TYPE           ILANLINE    #1


Select one of the following options:
      1. Intra
      2. BSC
      3. SNA
      4. Async
      5. PC Support/36

   Option: 3









Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

3. On display 4.0, select option 4 to create an SNA/IBM Token-Ring Network line member and specify that APPC or APPN is used.

```
  4.0                 SNA CONFIGURATION MEMBER TYPE             ILANLINE    #1


 1. SNA member type  . . . . . . . . . . . . . . . . . . . . 1-4  4
       1. SNA subsystem member
       2. SNA/SDLC line member
       3. SNA/X.25 line member
       4. SNA/IBM Token-Ring Network line member


 2. Will APPC or APPN be used? . . . . . . . . . . . . . . . . Y,N  Y





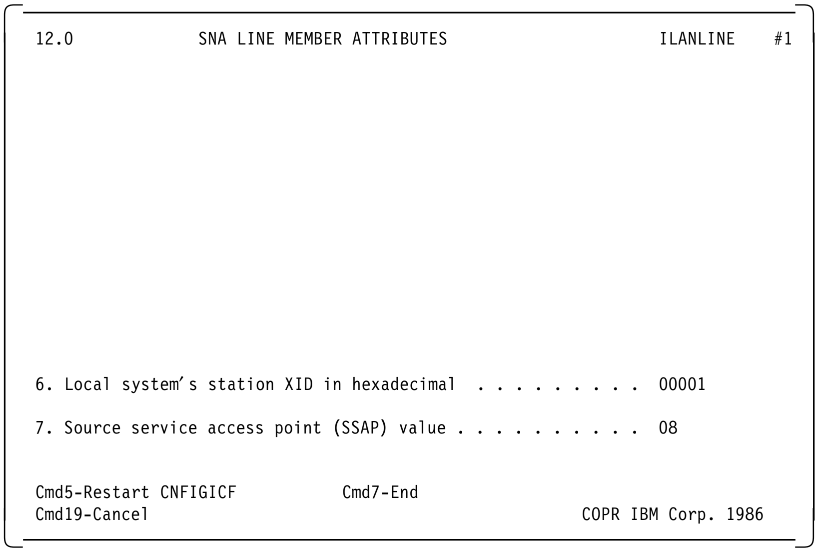




 Cmd3-Previous display       Cmd5-Restart CNFIGICF
 Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

4. On display 12.0, type the Local system's XID as 00001 and the SSAP as 08.



```
12.0            SNA LINE MEMBER ATTRIBUTES                     ILANLINE    #1















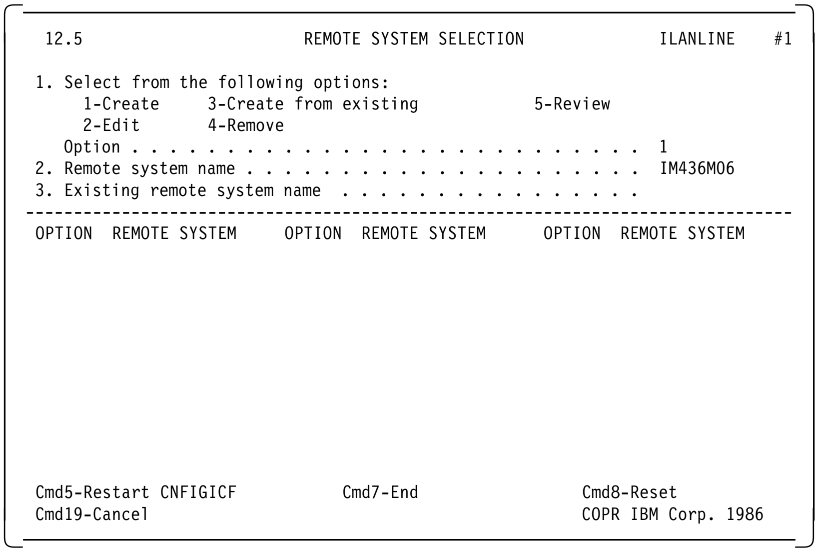

6. Local system′s station XID in hexadecimal  . . . . . . . . .  00001

7. Source service access point (SSAP) value . . . . . . . . . .  08


Cmd5-Restart CNFIGICF           Cmd7-End
Cmd19-Cancel                                            COPR IBM Corp. 1986
```

Press Enter.

5. On display 12.5, create a remote system entry for OS/400 as follows:



```
 12.5                       REMOTE SYSTEM SELECTION             ILANLINE    #1

1. Select from the following options:
     1-Create     3-Create from existing           5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . .  1
2. Remote system name . . . . . . . . . . . . . . . . . . . . .  IM436M06
3. Existing remote system name  . . . . . . . . . . . . . . . .
--------------------------------------------------------------------------------
OPTION  REMOTE SYSTEM     OPTION  REMOTE SYSTEM      OPTION  REMOTE SYSTEM











Cmd5-Restart CNFIGICF           Cmd7-End                 Cmd8-Reset
Cmd19-Cancel                                            COPR IBM Corp. 1986
```

Press Enter.

6. On display 13.0, IM436M06 should be of the type Peer. The remote system′s block ID must be 056 and its station ID 00000.

```
13.0                REMOTE SYSTEM ATTRIBUTES                    ILANLINE    #3

                      Remote system IM436M06
1. Remote system type . . . . . . . . . . . . . . . . . . . . . . 2
  1-Host              2-Peer



3. Remote system's block ID in hexadecimal  . . . . . . . . . . . 056

4. Remote system's station XID in hexadecimal . . . . . . . . . . 00000



Cmd5-Restart CNFIGICF           Cmd7-End
Cmd19-Cancel                                          COPR IBM Corp. 1986
```

Press Enter.

7. On display 13.5, type the address for IM436M06 as 400000000000 and its DSAP as 04.

```
13.5                        REMOTE SYSTEM ATTRIBUTES            ILANLINE    #1

       Remote system IM436M06

1. Remote adapter address  . . . . . . . . . . . . . . . . . . 400000000000

2. Destination service access point (DSAP) value . . . . . . . 04



Cmd5-Restart CNFIGICF           Cmd7-End
Cmd19-Cancel                                          COPR IBM Corp. 1990
```

Press Enter.

8. Display 12.5 is shown as follows after the remote system has been created successfully.

```
 12.5                       REMOTE SYSTEM SELECTION              ILANLINE    #1

1. Select from the following options:
     1-Create     3-Create from existing            5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . .
2. Remote system name . . . . . . . . . . . . . . . . . . . . .
3. Existing remote system name  . . . . . . . . . . . . . . . .
--------------------------------------------------------------------------------
OPTION  REMOTE SYSTEM     OPTION  REMOTE SYSTEM      OPTION  REMOTE SYSTEM
          IM436M06











Cmd5-Restart CNFIGICF           Cmd7-End                 Cmd8-Reset
Cmd19-Cancel                                             COPR IBM Corp. 1986
```

Press Cmd 7 three times to exit CNFIGICF.

9.5 M36 ILAN Subsystem Definition

CNFIGICF is used to configure the subsystem member for the OS/400 and PC links to the M36.

1. Type CNFIGICF at the command line and press Enter to get display 1.0. On that display, type the name of the subsystem member name and its library. Choose option 1 to create a new member.

```
 1.0           SSP-ICF CONFIGURATION MEMBER DEFINITION                     #1


1. Configuration member name  . . . . . . . . . . . . . . . . .  ILANSBS

2. Library name . . . . . . . . . . . . . . . . . . . . . . . .  #CNFGLIB

3. Select one of the following:
      1. Create new member
      2. Edit existing member
      3. Create new member from existing member
      4. Remove a member
      5. Review a member
   Option . . . . . . . . . . . . . . . . . . . . . . . . . 1-5  1






Cmd7-End     Cmd19-Cancel
```

   Choose option 1 to create a new member.

2. On display 2.0, select option 3 for SNA.

```
 2.0              SSP-ICF CONFIGURATION MEMBER TYPE           ILANSBS     #1


Select one of the following options:
      1. Intra
      2. BSC
      3. SNA
      4. Async
      5. PC Support/36

   Option: 3









Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

3. On display 4.0, select option 1 to create a SNA subsystem member.

```
 4.0                SNA CONFIGURATION MEMBER TYPE             ILANSBS     #1


1. SNA member type  . . . . . . . . . . . . . . . . . . . . 1-4  1
      1. SNA subsystem member
      2. SNA/SDLC line member
      3. SNA/X.25 line member
      4. SNA/IBM Token-Ring Network line member









Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

4. On display 21.0, select option 6 to define an APPC link type. This makes the SSP machine a low entry network node.

```
21.0             SNA SUBSYSTEM MEMBER SELECTION                ILANSBS     #1



1. Select subsystem type from the following options:
      1. Peer
      2. SNA Upline
      3. SNA 3270
      4. Finance
      5. SNA MSRJE
      6. APPC
      7. APPN
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . 1-7  6









Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

5. A new parameter is shown on display 21.0. Type the name of the line member that we have created earlier.

```
21.0             SNA SUBSYSTEM MEMBER SELECTION                ILANSBS     #1



1. Select subsystem type from the following options:
      1. Peer
      2. SNA Upline
      3. SNA 3270
      4. Finance
      5. SNA MSRJE
      6. APPC
      7. APPN
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . 1-7  6


2. Line member name . . . . . . . . . . . . . . . . . . . . .  ILANLINE




                            Cmd5-Restart CNFIGICF
                            Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

6. On display 29.0, create a remote location IM436M06 for the remote system IM436M06 that we created earlier.

```
 29.0                    REMOTE LOCATION SELECTION            ILANSBS     #1

 1. Select from the following options:
      1-Create

    Option . . . . . . . . . . . . . . . . . . . . . . . . . . . . 1
 2. Remote location name . . . . . . . . . . . . . . . . . . . . . IM436M06
 3. Remote system name . . . . . . . . . . . . . . . . . . . . . . IM436M06
 4. Existing location name . . . . . . . . . . . . . . . . . . . .
-------------------------------------------------------------------------------
 OPTION   LOCATION     REMOTE SYSTEM                            Page  1  of  1
                         IM436M06 ...
```

Press Enter.

7. Now back on display 29.0, create a remote location entry for the PC P7089171 linked to the remote system IM436M06. This means that IM436M06's APPN capabilities are used to do intermediate APPN routing between P7089171 and IBMM3601.

```
 29.0                    REMOTE LOCATION SELECTION            ILANSBS     #1

 1. Select from the following options:
      1-Create     3-Create from existing           5-Review
      2-Edit       4-Remove
    Option . . . . . . . . . . . . . . . . . . . . . . . . . . . . 1
 2. Remote location name . . . . . . . . . . . . . . . . . . . . . P7089171
 3. Remote system name . . . . . . . . . . . . . . . . . . . . . . IM436M06

-------------------------------------------------------------------------------
 OPTION   LOCATION     REMOTE SYSTEM                            Page  1  of  1
          IM436M06       IM436M06 ...
```

8. Press Enter and you should see display 29.0 again, but this time with two remote locations defined.

```
 29.0                    REMOTE LOCATION SELECTION            ILANSBS     #1

 1. Select from the following options:
     1-Create     3-Create from existing           5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . .
 2. Remote location name . . . . . . . . . . . . . . . . . . . .
 3. Remote system name . . . . . . . . . . . . . . . . . . . . .

--------------------------------------------------------------------------------
 OPTION   LOCATION     REMOTE SYSTEM                          Page  1  of  1
          IM436M06       IM436M06
          P7089171       IM436M06



                                          Cmd5-Restart CNFIGICF
             Cmd8-Reset     Cmd19-Cancel      Roll-Page    COPR IBM Corp. 1986
```

Press Cmd 7 three times to exit CNFIGICF.

9. Next, we need to create a session group name QPCSUPP for location P7089171 because it is needed for Client Access/400. OS/400 provides mode (SSP session group) QPCSUPP, but it must be created on SSP. Type option 2 next to P7089171.

```
 29.0                    REMOTE LOCATION SELECTION            ILANSBS     #1

 1. Select from the following options:
     1-Create     3-Create from existing           5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . .
 2. Remote location name . . . . . . . . . . . . . . . . . . . .
 3. Remote system name . . . . . . . . . . . . . . . . . . . . .
 4. Existing location name . . . . . . . . . . . . . . . . . . .
--------------------------------------------------------------------------------
 OPTION   LOCATION     REMOTE SYSTEM                          Page  1  of  1
          IM436M06       IM436M06
   2      P7089171       IM436M06



                                          Cmd5-Restart CNFIGICF
 Cmd7-End     Cmd8-Reset     Cmd19-Cancel      Roll-Page    COPR IBM Corp. 1986
```

Press Enter.

10. Leave the parameters as defaults on display 30.0.

```
30.0                  REMOTE LOCATION DEFINITION                ILANSBS     #1

      Remote system IM436M06             Remote location P7089171

1. Activate location at ENABLE? . . . . . . . . . . . . . . . Y,N  Y

2. Send alerts to this location?  . . . . . . . . . . . . . . Y,N  N



Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

11. Leave the parameters as defaults on display 41.0.

```
41.0            APPC AND APPN LOCATION DEFINITION                ILANSBS     #1

      Remote system IM436M06             Remote location P7089171

1. Single-session location? . . . . . . . . . . . . . . . . . Y,N  N

2. Stay operational?  . . . . . . . . . . . . . . . . . . . . Y,N  Y



Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

12. On display 42.0, select option 1 to create a new session group with the name QPCSUPP.

```
 42.0                    SESSION GROUP SELECTION              TRN1SBS     #1

      Remote system IM436M06             Remote location P7089171

 1. Select from the following options:
     1-Create     3-Create from existing           5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 1
 2. Session group name . . . . . . . . . . . . . . . . . . . . . . . . . QPCSUPP
 3. Existing session group name  . . . . . . . . . . . . . . . . . . .
 4. Default session group name . . . . . . . . . . . . . . . . . . . . *BLANK
-------------------------------------------------------------------------------
 OPTION   SESSION GROUP
            *BLANK





 Cmd3-Previous display       Cmd5-Restart CNFIGICF           Cmd7-End
 Cmd8-Reset                  Cmd19-Cancel                    COPR IBM Corp. 1986
```

Press Enter.

13. Display 42.0 is shown again, but this time with the new session group QPCSUPP.

```
 42.0                    SESSION GROUP SELECTION              TRN1SBS     #1

      Remote system IM436M06             Remote location P7089171

 1. Select from the following options:
     1-Create     3-Create from existing           5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 2. Session group name . . . . . . . . . . . . . . . . . . . . . . . . .
 3. Existing session group name  . . . . . . . . . . . . . . . . . . .
 4. Default session group name . . . . . . . . . . . . . . . . . . . . *BLANK
-------------------------------------------------------------------------------
 OPTION   SESSION GROUP
            *BLANK
            QPCSUPP





 Cmd3-Previous display       Cmd5-Restart CNFIGICF           Cmd7-End
 Cmd8-Reset                  Cmd19-Cancel                    COPR IBM Corp. 1986
```

14. After the session group QPCSUPP has been created successfully, we may exit CNFIGICF by pressing Cmd 7 three times.

9.6 SSP Security

Refer to 8.6, “SSP Security” on page 178 on how to create a null id on the M36.

9.7 PC Configuration

The PC needs to have a TRN adapter and IBM LAN Support Program installed. Refer to 7.5, “PC Configuration” on page 157 on how to install IBM LAN Support Program.

Install Client Access/400 for DOS Extended on the PC. Use the following parameters when you are prompted:

```
                    CA/400 Installation
                  (PC to AS/400 Connection)

Connection type                  : Local Area Network

PC Information
     PC Location name            : IBMNET.P7089171

System Information
     Name of system to connect to : IM436M06
     System LAN Address          : 400000000436
```

After installation, you should have the following entries in the CONFIG.PCS file in the Client Access/400 directory on your PC.

```
RTYP ITRN
RTLN ITSCNET.P7089171
TRLI IM436M06,400000000436
SFLR 1,I,,IM426M06
```

You should manually edit CONFIG.PCS to include two additional statements for the PC to use the APPN network node routing function of IM436M06 to access IBMM3601. The two new statements are marked (*). **Do not include the (*) in your CONFIG.PCS.**

```
RTYP ITRN
RTLN ITSCNET.P7089171
TRLI IM436M06,400000000436
ADRS IBMM3601,IM436M06,*NULL   (*)
SFLR 1,I,,IM436M06
SFLR 1,J,,IBMM3601             (*)
```

9.8 PC Configuration for Windows

Refer to 8.8, “PC Configuration for Windows” on page 179 on how to configure the PC to run Client Access/400 for DOS Extended within a Windows environment.

9.9 Operation

Vary on the APPC controller and device in OS/400 for the link to the M36 machine. Use the command WRKCFGSTS to check on the status of the link. If the link to the SSP machine has been started successfully after the SSP subsystem has also been started, the WRKCFGSTS display should look similar to the following display:

```
                        Work with Configuration Status                SYSNM006
                                                            08/15/95  17:20:00
 Position to  . . . . .                Starting characters

 Type options, press Enter.
   1=Vary on   2=Vary off   5=Work with job   8=Work with description
   9=Display mode status ...

 Opt  Description       Status                -------------Job--------------
      QM36ILAN          ACTIVE
        IBMM3601        ACTIVE





                                                                       Bottom
 Parameters or command
 ===>
 F3=Exit   F4=Prompt   F12=Cancel   F23=More options   F24=More keys
```

Vary on the token-ring line, controller, and device in IM436M06 for the link to the PC. Use the WRKCFGSTS command to check on the status of the link. If the link to the PC has been started successfully after Client Access on the PC has been started up, the WRKCFGSTS display should look similar to the following display:

```
                        Work with Configuration Status                IM436M06
                                                            08/21/95  17:33:37
 Position to  . . . . .                Starting characters

 Type options, press Enter.
   1=Vary on   2=Vary off   5=Work with job   8=Work with description
   9=Display mode status ...

 Opt  Description       Status                -------------Job--------------
      ITSCTRN           ACTIVE
        P7089171        ACTIVE
          P7089171      ACTIVE
            QPCSUPP     ACTIVE/TARGET         P7089171    QUSER       003998




                                                                       Bottom
 Parameters or command
 ===>
 F3=Exit   F4=Prompt   F12=Cancel   F23=More options   F24=More keys
```

The subsystem on the SSP machine should be enabled using the ENABLE command according to the following display:

```
                  Enables an Interactive Communications Feature,
                  MSRJE, or 3270 device emulation subsystem


 Subsystem configuration name  . . . . . . . . . . . . . . . . . .  ILANSBS

 Name of library . . . . . . . . . . . . . . . . . . . . . . . . .  #CNFGLIB

 Line number . . . . . . . . . . . . . . . . . . . . . . .  1-10  15        *

 Display values in effect
   for this subsystem  . . . . . . . . . . . . . . . . NOSHOW,SHOW  NOSHOW

 Remote location name  . . . . . . . . . . . . . . . . . . . . .            *

 Line member name  . . . . . . . . . . . . . . . . . . . . . . .            *




 Cmd3-Previous menu    Cmd4-Put on job queue                COPR IBM Corp. 1986
```

The subsystem should be communicating with OS/400 before you attempt to connect the PC to the SSP machine. To check the status of the subsystem, run D I at the command line.

```
 Complete                      SUBSYSTEM STATUS                            #2

CONFIG   CONFIG    LINE  LOCATION   STATUS       COMMUNI-   --NO. OF SESSIONS--
NAME     TYPE            NAME                    CATING     EVOKED     ACQUIRED
ILANSBS  APPC       15   IM436M06  Enabled          Y        ---         ---
                         P7089171  Enabled          N        ---         ---




  Cmd7-End      Cmd8-Help     Cmd15-Update      Cmd16-Restart      Roll-Page
--------------------------------------------------------------------------------
                                    CNTLLINE
                       Start or stop communication lines
    1. Start a subsystem
    2. Stop a subsystem                 6. Control APPC
    3. Start monitoring a BSC line      7. Control alert support
    4. Stop monitoring a BSC line

 Ready for option number or command


                                                        COPR IBM Corp. 1985
```

At the PC, start Client Access by running STARTPCS.BAT. When the common USERID prompt appears for the Signon to IM436M06, type your OS/400 USERID and press Enter followed by the corresponding OS/400 password. When the USERID and password prompts appears for the Signon to IBMM3601, just press Enter. If you are running Client Access/400 within Windows, you need to start Windows at this point.

9.10 Matching Parameters

1. OS/400 and PC

```
OS/400                                      PC
------                                      --
TRLAN LINE DESCRIPTION                      CONFIG.SYS
  LIND(ITSCTRN)                               DEVICE=C:\LSP\DXMCOMOD.SYS
  ADPTADR(400000000436) ──────► 1   5 ◄──────────── 400030000241

APPC CONTROLLER DESCRIPTION
  CTLD(P7089171)                            CONFIG.PCS
  LINKTYPE(*LAN) ─────────────► 2   2 ◄─────  RTYP ITRN
  SWTLINLST(ITSCTRN)                          RTLN ITSCNET.P7089171
  RMTNETID(ITSCNET) ──────────► 3   3 ◄──────────────┘       │
  RMTCPNAME(P7089171) ────────► 4   4 ◄──────────────────────┘
  ADPTADR(400030000241) ──────► 5           TRLI IM436M06,400000000436
  APPN(*YES)                            6 ◄──────────────┘       │
                                        1 ◄──────────────────────┘

NETWORK ATTRIBUTES
  LOCAL LOCATION NAME :
            IM436M06 ─────────► 6
```

2. OS/400 and SSP, PC and SSP

```
OS/400                                  M36
------                                  ---
CRTCTLAPPC                              SETCOMM
----------                                     TRN Address 400000000001
 CTLD(QILANM3601)
 LINKTYPE(*ILAN)
 RMTNETID(*NETATR)                      CNFIGICF
 RMTCPNAME(IBMM3601) ----------> 1        4.0 SNA/TRN Line member
 EXCHID(03E00001) ----------> 2                     ILANLINE
 DSAP(08) ----------> 3
 SSAP(04) ----------> 4                  12.0 SNA Line
 APPN(*YES)                         2 <---- 6.  XID Local in hex 00001
 NODETYPE(*LENNODE) ----------> 5   3 <---- 7.  SSAP value       08

CRTDEVAPPC                              12.5 Remote System
----------                               2.  Name            IM436M06
 DEVD(IBMM3601)
 RMTLOCNAME(IBMM3601) ----------> 1     13.0 Remote System Attribute
 LCLLOCNAME(IM436M06) ----------> 6      3.  Block ID in hex   056
 CTL(QILANM3601)                         4.  XID remote in hex 00001
 MODE(BLANK) ----------> 7
 APPN(*YES)                             13.5 Remote System
                                         1.  Adapt. Addr. 400000000000
CONFIG.PCS                          4 <---- 2.  DSAP value   04
----------
RTYP ITRN                               21.0 SNA Subsystem   ILANSBS
RTLN ITSCNET.P7089171 ----------> 8   5 <---- 1.  Subsystem type  APPC
                                         2.  Line member     ILANLINE

TRLI IM436M06,400000000436
        ----------> 6
ADRS IBMM3601,IM436M06 ----------> 6    22.0 Subsystem Member Definition
        ----------> 1                    1.  Local location name
                                    1 <---------------------- IBMM3601

                                        29.0 Remote Location Selection
                                    6 <---- 2.  Remote loc. name IM436M06
                                            Remote sys. name IM436M06

                                        29.0 Remote Location Selection
                                    8 <---- 2.  Remote loc. name P7089171
                                            Remote sys. name IM436M06

                                        42.0 Session Group Selection
                                    7 <---- 2.  Session Group *BLANK
                                             2.  Session Group QPCSUPP
```

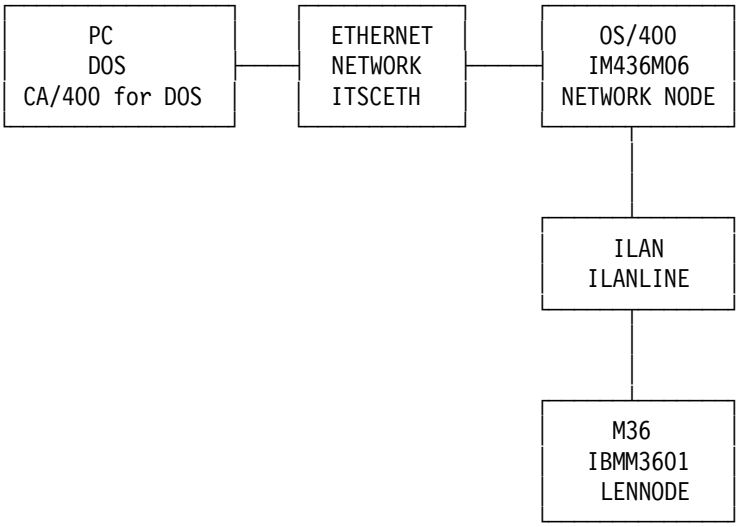
Chapter 10. Client Access/400 for DOS Ext to M36 through OS/400 on Ethernet

This chapter covers the configuration steps necessary to set up Client Access/400 for DOS Extended for a PC in an Ethernet network to access OS/400 and be routed to the SSP machine through the ILAN. The OS/400 APPN routing capability is used by the PC to access the SSP machine.

Note: In this chapter, ″M36″ is used as an abbreviation for ″SSP machine.″

This configuration may be used for the following reasons:

- DOS is loaded on the PC.
- DOS Extended capabilities of Client Access/400.
- GUI interface and Windows capabilities of Client Access/400.
- The PC is used for any of the following Client Access/400 functions to the M36 machine:
  1. Shared folders
  2. Organizer
  3. File transfer
  4. Virtual print
  5. Text assist
  6. Workstation Function
  7. Messaging
- Access to all OS/400 Client Access/400 functions.



10.1 System Requirements

The following are required on the Model 436:

1. OS/400 with an SSP machine configured
2. An Ethernet adapter
3. Client Access/400
4. PC Support/36 base
5. PC Support/36 Token-Ring network support
6. PC Support/36 workstation feature
7. Base communications support
8. Extended communications support
9. LAN communications support

The following are required on the PC:

1. An Ethernet adapter and its driver diskette
2. IBM LAN Support Program Version 1.3 (Product Number 93F2456)
3. Client Access/400 for DOS with Ext Memory

Refer to 8.1, “System Requirements” on page 167 on how to obtain IBM LAN Support Program from the QIWSTOOL shared folder in OS/400.

10.2 OS/400 Definition for PC

The following CL program creates the definitions for the PC:

```
CRTLINETH LIND(ITSCETH) RSRCNAME(LIN06) ADPTADR(420000000000) +
            EXCHID(05600000) AUTOCRTCTL(*NO) +
            TEXT('ITSC ETH LINE')

CRTCTLAPPC CTLD(P7089171) LINKTYPE(*LAN) SWTLINLST(ITSCETH) +
            RMTNETID(ITSCNET) RMTCPNAME(P7089171) +
            ADPTADR(420000000042) AUTOCRTDEV(*ALL) +
            TEXT('APPC CTL FOR P7089171')
```

Refer to ″Appendix F on Ethernet Address Considerations″ in the *Client Access/400 for DOS Extended Memory Setup*, SC41-3500-01, manual when configuring the APPC controller description.

The APPC controller may be automatically created by OS/400 if the CRTLINETH parameter AUTOCRTCTL is set to *YES. However, for security reasons, it is better to set this parameter to *NO to control access to the system.

The APPC controller parameter AUTOCRTDEV has been set to *ALL to automatically create the APPC device for the PC.

The virtual controller description is automatically created by OS/400 for use with Display Station Pass-Through and TCP/IP TELNET. If the system value QAUTOVRT is set to a non-zero value and provided the system has not already automatically created this number of virtual devices, then the virtual device descriptions for the PC are created automatically.

10.3 OS/400 Definition for the SSP machine

Refer to 9.3, “OS/400 Definition for SSP” on page 185 on how to create an ILAN APPC controller for IBMM3601.

10.4 SSP Machine ILAN Line Definition

Refer to 9.4, “M36 ILAN Line Definition” on page 185 on how to create an ICF line member on IBMM3601 for IM436M06.

10.5 SSP Machine ILAN Subsystem Definition

Refer to 9.5, “M36 ILAN Subsystem Definition” on page 189 on how to configure the subsystem member for the OS/400 and PC links to the SSP machine.

10.6 SSP Security

Refer to 8.6, “SSP Security” on page 178 on how to create a *NULL USERID on IBMM3601.

10.7 PC Configuration

The PC needs to have an Ethernet adapter and IBM LAN Support Program installed. In this example, we install an IBM LAN Adapter/A for Ethernet in a PS/2 Model 70. You also need to have your Ethernet adapter′s driver diskette on hand.

To install the LAN Support Program, do the following:

1. Insert the LAN Support Program diskette into your A drive. Switch your DOS drive letter to A. Type DXMAID at the DOS prompt and press Enter four times. The following display is shown:

```
                    LAN Support Program Installation Aid

 Use the arrow keys to move between fields. Make changes as needed to the
 information below; then, press Enter.

 Setup
 Use the Space bar to toggle between 'Yes' and 'No':

    Are you updating an existing configuration?            Yes
    Do you have driver diskettes?                          Yes

 Type changes as needed to the information below:

    Target for LSP:                                  C:\LSP

    CONFIG.SYS to update:                            C:\CONFIG.SYS

    AUTOEXEC.BAT to update:                          C:\AUTOEXEC.BAT

 F1=Help   F3=Exit   F7=Previous panel   Enter=Continue
```

   Leave the parameters on this display as defaults. Press Enter to continue.

2. The next display prompts you to insert your driver diskette into a drive and type in the drive letter. Type the appropriate option for your setup.

```
                    LAN Support Program Installation Aid

Press Esc if you do not want to process a driver diskette. Otherwise, insert
the driver diskette; then, press Enter.

 Process Driver Diskette

 Type changes as needed to the drive and directory for DOS NDIS files:

 A:\DOS

Esc=Cancel   F1=Help   F3=Exit
F9=Restart setup   Enter=Process diskette
```

Press Enter.

3. The driver files are read and at the completion, the following display is shown:

```
                    LAN Support Program Installation Aid

 Information

    Driver diskette files processed at A:\DOS.
    Press F7 to process additional driver diskettes; otherwise, press
    Enter to continue.

F3=Exit   F7=Previous panel   Enter=Continue
```

Press Enter to continue.

4. On the next display, you see that the primary adapter is IBM LAN Adapter/A for Ethernet. You see a different primary adapter here if you have installed a different Ethernet adapter on your PC and have used its corresponding driver diskette for this installation. There are two protocol drivers also. We only need to use the IBM DOS IEEE 802.2 Protocol for NDIS (DXME0MOD.SYS) driver for our setup. You can install the IBM DOS NETBIOS (DXMT0MOD.SYS) driver but in this example, we will not install it.

```
                    LAN Support Program Installation Aid

 Press F4 to install the drivers shown below. To change the drivers, use the
 arrow keys to move to the desired field; then, press F6.

 ┌──Primary Adapter: ADAPTER DRIVER──────────────────────────────────────┐
 │   IBM LAN Adapter/A for Ethernet (IBMENII.DOS)                        │
 │                                                                       │
 ├──Primary Adapter: PROTOCOL DRIVERS────────────────────────────────────┤
 │   IBM DOS NETBIOS (DXMTOMOD.SYS)                                      │
 │   IBM DOS IEEE 802.2 Protocol for NDIS (DXMEOMOD.SYS)                 │
 └───────────────────────────────────────────────────────────────────────┘

 ┌──Alternate Adapter: ADAPTER DRIVER────────────────────────────────────┐
 │                                                                       │
 │                                                                       │
 ├──Alternate Adapter: PROTOCOL DRIVERS──────────────────────────────────┤
 │                                                                       │
 │                                                                       │
 └───────────────────────────────────────────────────────────────────────┘

 F1=Help   F3=Exit   F4=Install   F5=Change parameters
 F6=Driver choices   F9=Restart setup
```

Place your cursor at the NETBIOS driver and press F6. The following display is shown:

```
                    LAN Support Program Installation Aid

 Use the up and down arrow keys to move between fields. Press the Space bar to
 select or deselect drivers; then, press F4 to save selections.

 ┌──Protocol Driver Selections───────────────────────────────────────────┐
 │                                                          More -+       │
 │  (X) IBM DOS IEEE 802.2 Protocol for NDIS (DXMEOMOD.SYS)               │
 │                                                                       │
 │  (X) IBM DOS NETBIOS (DXMTOMOD.SYS)                                   │
 │                                                                       │
 │      IBM DOS NETBIOS Protocol for NDIS (DXMJOMOD.SYS)                 │
 │                                                                       │
 │                                                                       │
 │                                                                       │
 │                                                                       │
 │                                                                       │
 │                                                                       │
 └───────────────────────────────────────────────────────────────────────┘

 Esc=Cancel   F1=Help   F4=Save selections   F7=Page Up   F8=Page Down
```

Place your cursor at the NETBIOS driver and press the Space Bar to de-select it. Press F4. You are returned to the previous display. Notice that the NETBIOS driver is no longer displayed here.

```
                    LAN Support Program Installation Aid

 Press F4 to install the drivers shown below. To change the drivers, use the
 arrow keys to move to the desired field; then, press F6.

 ┌─Primary Adapter: ADAPTER DRIVER──────────────────────────────────────┐
 │   IBM LAN Adapter/A for Ethernet (IBMENII.DOS)                        │
 │                                                                       │
 ├─Primary Adapter: PROTOCOL DRIVERS────────────────────────────────────┤
 │                                                                       │
 │   IBM DOS IEEE 802.2 Protocol for NDIS (DXME0MOD.SYS)                 │
 └───────────────────────────────────────────────────────────────────────┘

 ┌─Alternate Adapter: ADAPTER DRIVER────────────────────────────────────┐
 │                                                                       │
 │                                                                       │
 ├─Alternate Adapter: PROTOCOL DRIVERS──────────────────────────────────┤
 │                                                                       │
 │                                                                       │
 └───────────────────────────────────────────────────────────────────────┘

 F1=Help   F3=Exit   F4=Install   F5=Change parameters
 F6=Driver choices   F9=Restart setup
```

Press F4 to install the programs.

5. Follow the instructions on the display shown at the completion of install.

```
                    LAN Support Program Installation Aid


 ┌─Information──────────────────────────────────────────────────────────┐
 │                                                                       │
 │                                                                       │
 │   Installation complete.                                              │
 │                                                                       │
 │   To activate this configuration, make sure there is no diskette in   │
 │   drive A:, unless you plan to run LSP from diskette; then, press     │
 │   Ctrl-Alt-Del to restart the computer.                               │
 │                                                                       │
 │   Refer to the LSP User's Guide if any error messages are displayed.  │
 │                                                                       │
 │                                                                       │
 └───────────────────────────────────────────────────────────────────────┘


C:\LSP135>
```

You should have the following drivers in CONFIG.SYS after installation:

```
DEVICE=C:\LSP\PROTMAN.SYS
DEVICE=C:\LSP\IBMENII.DOS
DEVICE=C:\LSP\DXMA0MOD.SYS
DEVICE=C:\LSP\DXME0MOD.SYS 420000000042
```

The IBMENII.DOS driver is unique to the IBM LAN Adapter/A for Ethernet card. You should see another driver in its place if you have a different Ethernet card installed in your PC.

The numbers following the DXME0MOD.SYS device driver were manually edited to customize the PC's Ethernet adapter network address. Alternatively, you may also use the LAN Support Program's installation program (DXMAID.EXE) to customize that address. If you do not customize the adapter's address, then the Ethernet adapter's burned-in address is used instead.

The LAN Support Program installation should also create the following statement in your AUTOEXEC.BAT file:

```
\LSP\CFGPCS.EXE
```

Install Client Access/400 for DOS Extended on the PC. Use the following parameters when you are prompted:

```
                    CA/400 Installation
                 (PC to AS/400 Connection)

Connection type                  : Local Area Network

PC Information
     PC Location name            : IBMNET.P7089171

System Information
     Name of system to connect to : IM436M06
     System LAN Address          : 420000000000
```

After installation, you should have the following entries in the CONFIG.PCS file in the Client Access/400 directory on your PC.

```
RTYP ITRN
RTLN ITSCNET.P7089171
TRLI IM436M06,420000000000
SFLR 1,I,,IM436M06
```

You should manually edit CONFIG.PCS to include two additional statements for the PC to use the APPN network node routing function of IM436M06 to access IBMM3601. Alternatively, you may also use the Client Access/400 configuration program (CFGPCS.EXE) to achieve the same result. The two new statements are marked (*). Do not include the (*) in your CONFIG.PCS.

```
RTYP ITRN
RTLN ITSCNET.P7089171
TRLI IM436M06,400000000000
ADRS IBMM3601,IM436M06,*NULL   (*)
SFLR 1,I,,IM436M06
SFLR 1,J,,IBMM3601             (*)
```

10.8 PC Configuration for Windows

Refer to 8.8, “PC Configuration for Windows” on page 179 on how to configure the PC to run Client Access/400 for DOS Extended within a Windows environment.

10.9 Operation

Vary on the APPC controller and device in OS/400 for the link to the M36. Use the WRKCFGSTS command to check on the status of the link. If the link to the SSP machine has been started successfully after the SSP subsystem has also been started, the WRKCFGSTS display should look similar to the following display:

```
                        Work with Configuration Status                IM436M06
                                                          08/15/95  17:20:00
Position to  . . . . .                Starting characters

Type options, press Enter.
  1=Vary on   2=Vary off   5=Work with job   8=Work with description
  9=Display mode status ...

Opt  Description       Status                -------------Job--------------
     QILANM3601        ACTIVE
       IBMM3601        ACTIVE





                                                                       Bottom
Parameters or command
===>
F3=Exit   F4=Prompt   F12=Cancel   F23=More options   F24=More keys
```

Vary on the token-ring line, controller, and device in IM436M06 for the link to the PC. Use the WRKCFGSTS command to check on the status of the link. If the link to the PC has been started successfully after Client Access on the PC has been started up, the WRKCFGSTS display should look similar to the following display:

```
                        Work with Configuration Status                IM436M06
                                                          08/21/95  17:33:37
Position to  . . . . .                Starting characters

Type options, press Enter.
  1=Vary on   2=Vary off   5=Work with job   8=Work with description
  9=Display mode status ...

Opt  Description       Status                -------------Job--------------
     ITSCTRN           ACTIVE
       P7089171           ACTIVE
         P7089171         ACTIVE
           QPCSUPP     ACTIVE/TARGET         P7089171       QUSER       003998




                                                                       Bottom
Parameters or command
===>
F3=Exit   F4=Prompt   F12=Cancel   F23=More options   F24=More keys
```

The subsystem in the SSP should be enabled using ENABLE according to the following display:

```
                  Enables an Interactive Communications Feature,
                  MSRJE, or 3270 device emulation subsystem


 Subsystem configuration name  . . . . . . . . . . . . . . . . . .  ILANSBS

 Name of library . . . . . . . . . . . . . . . . . . . . . . . . .  #CNFGLIB

 Line number . . . . . . . . . . . . . . . . . . . . . . .  1-10  15        *

 Display values in effect
   for this subsystem  . . . . . . . . . . . . . . . . NOSHOW,SHOW  NOSHOW

 Remote location name  . . . . . . . . . . . . . . . . . . . . . .           *

 Line member name  . . . . . . . . . . . . . . . . . . . . . . . .           *




 Cmd3-Previous menu    Cmd4-Put on job queue                COPR IBM Corp. 1986
```

The subsystem should be communicating with OS/400 before you attempt to connect the PC to the SSP machine. To check the status of the subsystem, run D I at the command line.

```
 Complete                       SUBSYSTEM STATUS                            #2

CONFIG   CONFIG    LINE  LOCATION   STATUS       COMMUNI-   --NO. OF SESSIONS--
NAME     TYPE            NAME                    CATING     EVOKED     ACQUIRED
ILANSBS  APPC       15   IM436M06  Enabled          Y        ---         ---
                         P7089171  Enabled          N        ---         ---




  Cmd7-End      Cmd8-Help     Cmd15-Update      Cmd16-Restart      Roll-Page
--------------------------------------------------------------------------------
                                    CNTLLINE
                       Start or stop communication lines
    1. Start a subsystem
    2. Stop a subsystem                6. Control APPC
    3. Start monitoring a BSC line     7. Control alert support
    4. Stop monitoring a BSC line

 Ready for option number or command


                                                          COPR IBM Corp. 1985
```

The subsystem should be at a Status of Enabled and should show Communication - Y.

At the PC, start Client Access by running STARTPCS.BAT. When the common USERID prompt appears for the Signon to IM436M06, type your OS/400 USERID and press Enter followed by its corresponding password. When the USERID and password prompts appear for the Signon to IBMM3601, just press Enter. If you are running Client Access/400 within Windows, then you have to start Windows at this point.

10.10 Matching Parameters

1. OS/400 and PC

```
OS/400                                      PC
------                                      --
ETHERNET LINE DESCRIPTION                   CONFIG.SYS
  LIND(ITSCETH)                               DEVICE=C:\LSP\DXMEOMOD.SYS
  ADPTADR(420000000000) ------> 1   5 <------------ 420000000042

APPC CONTROLLER DESCRIPTION
  CTLD(P7089171)                            CONFIG.PCS
  LINKTYPE(*LAN) ------------> 2    2 <------ RTYP ITRN
  SWTLINLST(ITSCETH)                          RTLN ITSCNET.P7089171
  RMTNETID(ITSCNET) ----------> 3   3 <----------------┘          │
  RMTCPNAME(P7089171) ---------> 4  4 <------------------------------┘
  ADPTADR(420000000042) ------> 5           TRLI IM436M06,420000000000
  APPN(*YES)                        6 <----------------┘          │
                                    1 <------------------------------┘

NETWORK ATTRIBUTES
  LOCAL LOCATION NAME :
           IM436M06 ----------> 6
```

2. OS/400 and SSP, PC and SSP

```
OS/400                                  M36
------                                  ---
CRTCTLAPPC                              SETCOMM
----------                                     TRN Address 400000000001
 CTLD(QILANM3601)
 LINKTYPE(*ILAN)
 RMTNETID(*NETATR)                      CNFIGICF
 RMTCPNAME(IBMM3601) ----------> 1        4.0 SNA/TRN Line member
 EXCHID(03E00001) ----------> 2                     ILANLINE
 DSAP(08) ----------> 3
 SSAP(04) ----------> 4                  12.0 SNA Line
 APPN(*YES)                           2 <---- 6.  XID Local in hex 00001
 NODETYPE(*LENNODE) ----------> 5     3 <---- 7.  SSAP value       08

CRTDEVAPPC                              12.5 Remote System
----------                               2.  Name            IM436M06
 DEVD(IBMM3601)
 RMTLOCNAME(IBMM3601) ----------> 1     13.0 Remote System Attribute
 LCLLOCNAME(IM436M06) ----------> 6      3.  Block ID in hex   056
 CTL(QILANM3601)                         4.  XID remote in hex 00000
 MODE(BLANK) ----------> 7
 APPN(*YES)                             13.5 Remote System
                                         1.  Adapt. Addr. 400000000000
CONFIG.PCS                            4 <---- 2.  DSAP value   04
----------
RTYP ITRN                              21.0 SNA Subsystem   ILANSBS
RTLN ITSCNET.P7089171 ----------> 8  5 <---- 1. Subsystem type   APPC
                                        2.  Line member     ILANLINE
TRLI IM436M06,420000000042
         ----------> 6
ADRS IBMM3601,IM436M06 ----------> 6   22.0 Subsystem Member Definition
         ----------> 1                  1.  Local location name
                                      1 <---------------------- IBMM3601

                                       29.0 Remote Location Selection
                                      6 <---- 2.  Remote loc. name IM436M06
                                              Remote sys. name IM436M06

                                       29.0 Remote Location Selection
                                      8 <---- 2.  Remote loc. name P7089171
                                              Remote sys. name IM436M06

                                       42.0 Session Group Selection
                                      7 <---- 2.  Session Group *BLANK
                                               2.  Session Group QPCSUPP
```

Chapter 11. Client Access/400 for OS/2 to M36 on Token-Ring

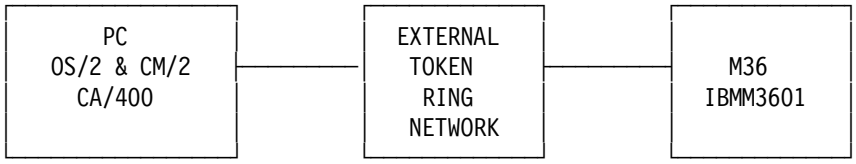
This chapter covers the configuration steps necessary to setup Client Access/400 for OS/2 on a PC in a token-ring network to an SSP machine. This OS/2 support is equivalent to the original PC Support/400 OS/2 support and not the newer ″optimized OS/2″ client support.

Note: In this chapter, ″M36″ is used as an abbreviation for ″SSP machine.″

The PC is used for any of the following Client Access functions to SSP.

1. Shared folders
2. Organizer
3. File transfer
4. Virtual print
5. Text assist
6. Workstation function

   5250 Emulation is part of Communication Manager/2.
7. Messaging



You **must** review the ″Description and Overview″ chapter in *Advanced 36 Coexistence User's Guide*, SC21-8386, to understand any Client Access/400 function restrictions when running to an SSP machine versus running to OS/400.

11.1 System Requirements

The following are required on the Model 436:

1. OS/400 with an SSP machine configured
2. A token-ring adapter
3. PC Support/36 IBM Token-Ring network support
4. PC Support/36 workstation feature
5. Base communications support
6. Extended communications support
7. LAN communications support

The following are required on the PC:

1. OS/2
2. IBM LAN Adapter and Protocol Support (LAPS)
3. Communications Manager/2

4. A token-ring adapter
5. Client Access/400 for OS/2

11.2 OS/400 Configuration

Refer to 7.2, “M36 Configuration” on page 150 for information on the configuration steps.

11.3 M36 Token-Ring Configuration

Refer to 7.3, “M36 Token-Ring Configuration” on page 153 for information on the configuration steps.

11.4 M36 Line Configuration

You must use CNFIGICF to configure the token-ring link to the PC.

1. First we need to create a line member. To do this, run CNFIGICF at the command line. At display 1.0, fill in the Configuration member Name and Library name you want to put your member into, and select option 1 to create a new member.

```
 1.0           SSP-ICF CONFIGURATION MEMBER DEFINITION                    #1


1. Configuration member name  . . . . . . . . . . . . . . . . . .  TRN1LINE

2. Library name . . . . . . . . . . . . . . . . . . . . . . . . .  #CNFGLIB

3. Select one of the following:
      1. Create new member
      2. Edit existing member
      3. Create new member from existing member
      4. Remove a member
      5. Review a member
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . 1-5  1





Cmd7-End     Cmd19-Cancel
```

   Press Enter.

2. At display 2.0, select option 3 to create a SNA member.

```
 2.0                SSP-ICF CONFIGURATION MEMBER TYPE           TRN1LINE    #1


Select one of the following options:
      1. Intra
      2. BSC
      3. SNA
      4. Async
      5. PC Support/36

   Option: 3









Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

3. At display 4.0, select option 4 to create an SNA/IBM Token-Ring Network line member and specify that APPC or APPN is used.

```
  4.0                 SNA CONFIGURATION MEMBER TYPE             TRN1LINE    #1


 1. SNA member type  . . . . . . . . . . . . . . . . . . . . 1-4  4
       1. SNA subsystem member
       2. SNA/SDLC line member
       3. SNA/X.25 line member
       4. SNA/IBM Token-Ring Network line member


 2. Will APPC or APPN be used? . . . . . . . . . . . . . . . . Y,N  Y



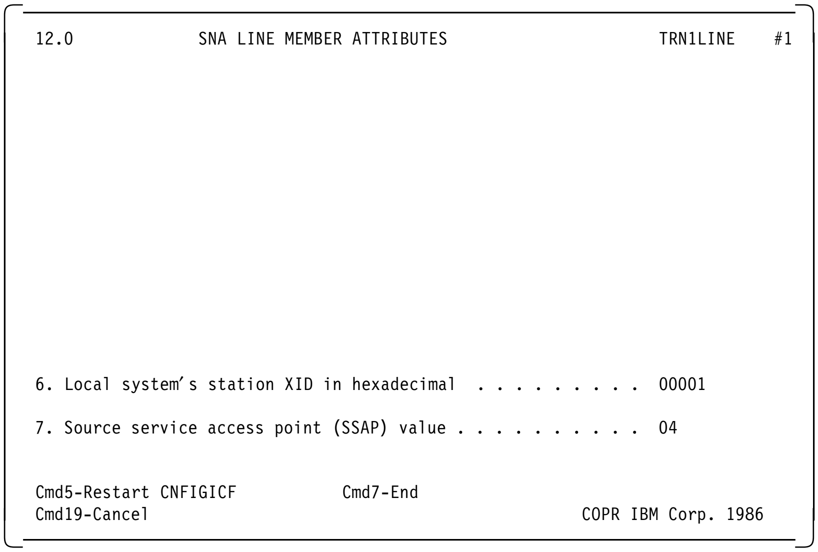






 Cmd3-Previous display       Cmd5-Restart CNFIGICF
 Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

4. At display 12.0, type the Local system's station XID as 00001 and the SSAP as 04. It is important that the SSAP value must be set to 04.



```
12.0             SNA LINE MEMBER ATTRIBUTES                     TRN1LINE    #1

















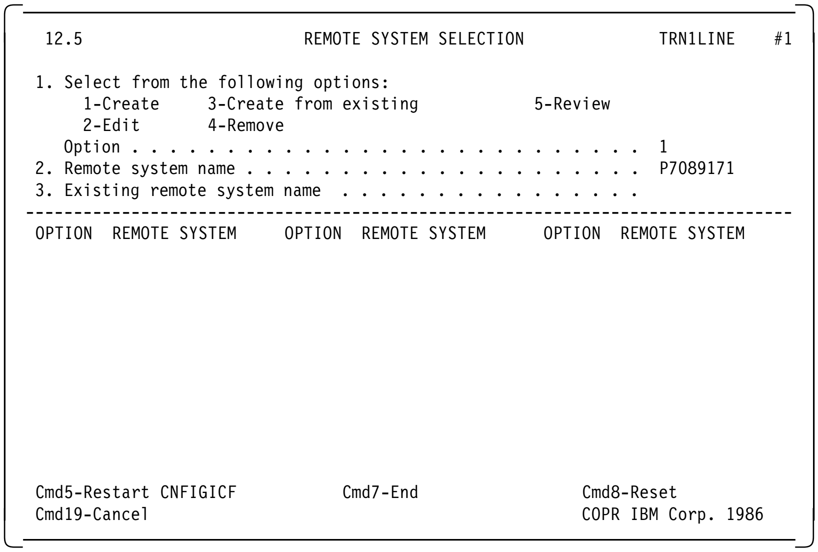
6. Local system′s station XID in hexadecimal  . . . . . . . . .  00001

7. Source service access point (SSAP) value . . . . . . . . . .  04


Cmd5-Restart CNFIGICF           Cmd7-End
Cmd19-Cancel                                             COPR IBM Corp. 1986
```

Press Enter.

5. At display 12.5, we create a remote system entry for the PC as follows:



```
 12.5                       REMOTE SYSTEM SELECTION             TRN1LINE    #1

1. Select from the following options:
     1-Create     3-Create from existing           5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . .  1
2. Remote system name . . . . . . . . . . . . . . . . . . . . .  P7089171
3. Existing remote system name  . . . . . . . . . . . . . . . .
--------------------------------------------------------------------------------
OPTION  REMOTE SYSTEM     OPTION  REMOTE SYSTEM      OPTION  REMOTE SYSTEM







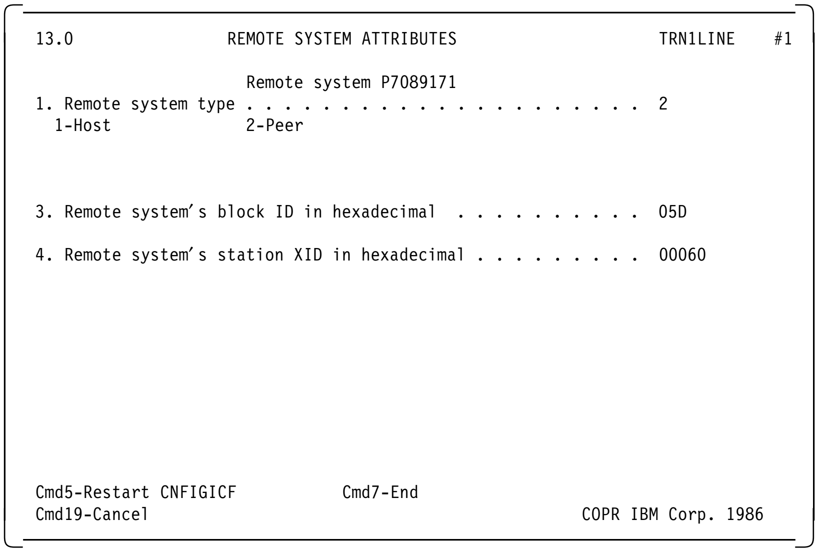




Cmd5-Restart CNFIGICF           Cmd7-End                 Cmd8-Reset
Cmd19-Cancel                                             COPR IBM Corp. 1986
```

Press Enter on display 12.5 to get the next display.

6. On display 13.0, the PC should be of the type Peer. The Remote system′s block ID must be set to 05D. The PC′s station XID is set to 00060 in this example.



```
13.0               REMOTE SYSTEM ATTRIBUTES                    TRN1LINE    #1

                      Remote system P7089171
1. Remote system type . . . . . . . . . . . . . . . . . . . . . 2
  1-Host              2-Peer



3. Remote system′s block ID in hexadecimal  . . . . . . . . . . 05D

4. Remote system′s station XID in hexadecimal . . . . . . . . . 00060





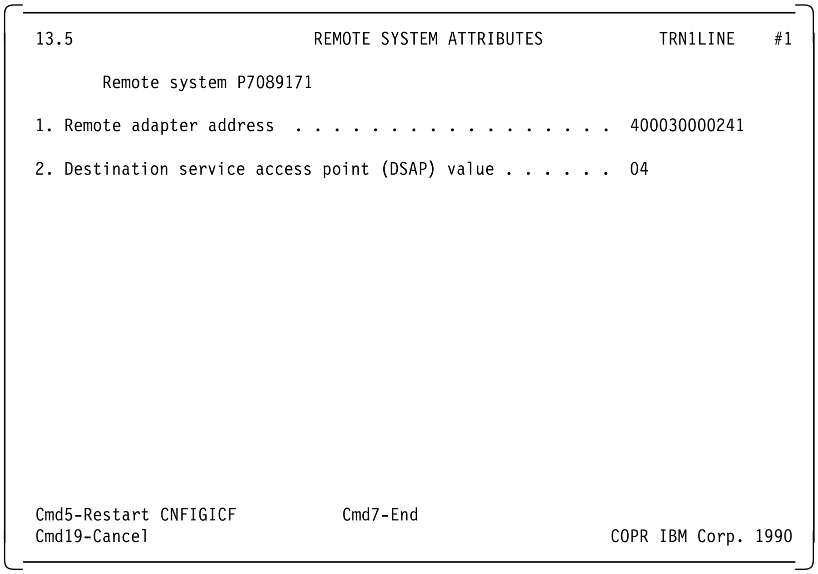





Cmd5-Restart CNFIGICF           Cmd7-End
Cmd19-Cancel                                            COPR IBM Corp. 1986
```

Press Enter.

7. On display 13.5, enter the PC′s Token-Ring Adapter address into the first parameter. Similar to the SSAP value on display 12.0, the PC′s DSAP value must also be set to 04 here.



```
13.5                        REMOTE SYSTEM ATTRIBUTES           TRN1LINE    #1

       Remote system P7089171

1. Remote adapter address  . . . . . . . . . . . . . . . . . . 400030000241

2. Destination service access point (DSAP) value . . . . . .  04







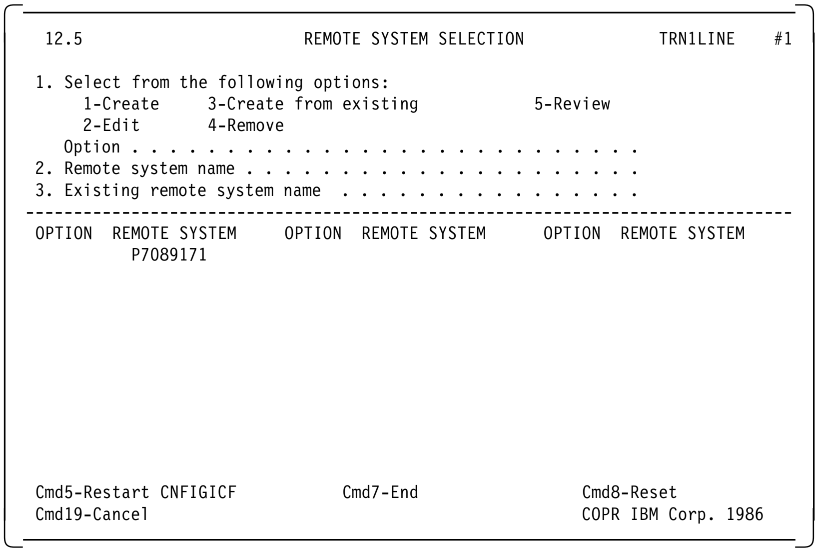







Cmd5-Restart CNFIGICF           Cmd7-End
Cmd19-Cancel                                               COPR IBM Corp. 1990
```

8. This brings us to display 12.5 where we see the PC location name as we have created it.



```
 12.5                      REMOTE SYSTEM SELECTION              TRN1LINE    #1

1. Select from the following options:
    1-Create     3-Create from existing            5-Review
    2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . .
2. Remote system name . . . . . . . . . . . . . . . . . . . . .
3. Existing remote system name  . . . . . . . . . . . . . . . .
-------------------------------------------------------------------------------
OPTION  REMOTE SYSTEM     OPTION  REMOTE SYSTEM      OPTION  REMOTE SYSTEM
          P7089171













Cmd5-Restart CNFIGICF           Cmd7-End                 Cmd8-Reset
Cmd19-Cancel                                             COPR IBM Corp. 1986
```

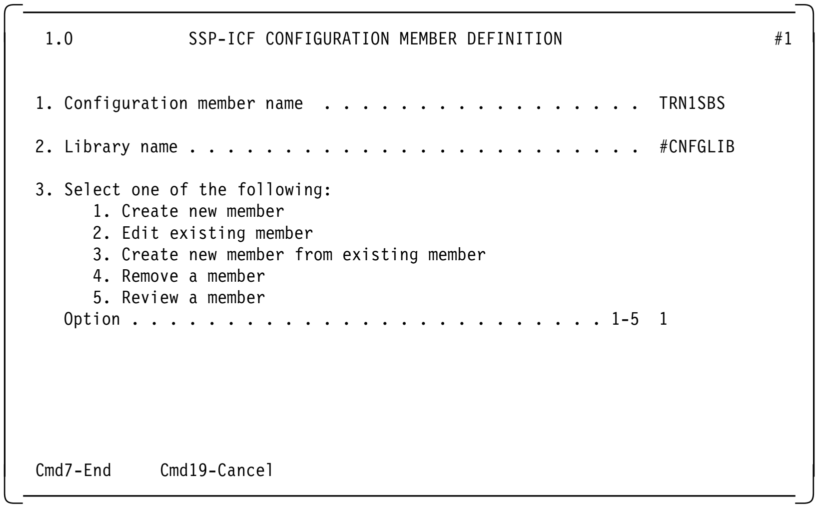
Press Cmd 7 three times to exit CNFIGICF.

This completes the setup of the token-ring line member.

11.5 M36 Subsystem Configuration

You must use CNFIGICF to configure an subsystem member that defines the link to the PC.

1. Type CNFIGICF at the command line and press Enter to get display 1.0. On that display, type the name of the subsystem member name, its library, and choose option 1 to Create a new member.



```
 1.0            SSP-ICF CONFIGURATION MEMBER DEFINITION                     #1


1. Configuration member name  . . . . . . . . . . . . . . . . .  TRN1SBS

2. Library name . . . . . . . . . . . . . . . . . . . . . . . .  #CNFGLIB

3. Select one of the following:
      1. Create new member
      2. Edit existing member
      3. Create new member from existing member
      4. Remove a member
      5. Review a member
   Option . . . . . . . . . . . . . . . . . . . . . . . . . 1-5  1






Cmd7-End     Cmd19-Cancel
```

2. On display 2.0, select option 3 for SNA.

```
 2.0               SSP-ICF CONFIGURATION MEMBER TYPE           TRN1SBS     #1


Select one of the following options:
      1. Intra
      2. BSC
      3. SNA
      4. Async
      5. PC Support/36

   Option: 3









Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

3. On display 4.0, select option 1 to create an SNA subsystem member.

```
 4.0                 SNA CONFIGURATION MEMBER TYPE             TRN1SBS     #1


1. SNA member type  . . . . . . . . . . . . . . . . . . . . 1-4  1
      1. SNA subsystem member
      2. SNA/SDLC line member
      3. SNA/X.25 line member
      4. SNA/IBM Token-Ring Network line member









Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

4. On display 21.0, select option 6 to define an APPC link type.

```
21.0              SNA SUBSYSTEM MEMBER SELECTION                TRN1SBS     #1



1. Select subsystem type from the following options:
      1. Peer
      2. SNA Upline
      3. SNA 3270
      4. Finance
      5. SNA MSRJE
      6. APPC
      7. APPN
   Option . . . . . . . . . . . . . . . . . . . . . . . . . 1-7  6









Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

5. A new parameter is shown on display 21.0. Type the name of the line member that we have already created.

```
21.0              SNA SUBSYSTEM MEMBER SELECTION                TRN1SBS     #1



1. Select subsystem type from the following options:
      1. Peer
      2. SNA Upline
      3. SNA 3270
      4. Finance
      5. SNA MSRJE
      6. APPC
      7. APPN
   Option . . . . . . . . . . . . . . . . . . . . . . . . . 1-7  6


2. Line member name . . . . . . . . . . . . . . . . . . . . . . TRN1LINE




                            Cmd5-Restart CNFIGICF
                            Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

6. On display 22.0, type the name of your local location.

```
22.0              SUBSYSTEM MEMBER DEFINITION                  TRN1SBS     #1

1. Local location name  . . . . . . . . . . . . . . . . . . . .  IBMM3601



Cmd5-Restart CNFIGICF          Cmd7-End
Cmd19-Cancel                                            COPR IBM Corp. 1986
```

Press Enter.

7. On display 29.0, create a remote location that is linked to the remote system that we created in the line member definition earlier.

```
 29.0                     REMOTE LOCATION SELECTION            TRN1SBS     #1

1. Select from the following options:
     1-Create     3-Create from existing           5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . . .  1
2. Remote location name . . . . . . . . . . . . . . . . . . . . .  P7089171
3. Remote system name . . . . . . . . . . . . . . . . . . . . . .  P7089171
4. Existing location name . . . . . . . . . . . . . . . . . . . .
-------------------------------------------------------------------------------
OPTION   LOCATION     REMOTE SYSTEM                              Page  1  of  1
                        P7089171



Cmd4-Display remote location list            Cmd5-Restart CNFIGICF
Cmd7-End     Cmd8-Reset     Cmd19-Cancel      Roll-Page    COPR IBM Corp. 1986
```

Press Enter.

8. Next, we need to create a session group with the name QPCSUPP for the PC location P7089171. This is because the PC is running Client Access/400 which uses QPCSUPP mode. To do this, select option 2 next to the PC location.

```
 29.0                    REMOTE LOCATION SELECTION            TRN1SBS     #1

 1. Select from the following options:
      1-Create     3-Create from existing           5-Review
      2-Edit       4-Remove
    Option . . . . . . . . . . . . . . . . . . . . . . . . . . .
 2. Remote location name . . . . . . . . . . . . . . . . . . . .
 3. Remote system name . . . . . . . . . . . . . . . . . . . . .
 4. Existing location name . . . . . . . . . . . . . . . . . . .
-----------------------------------------------------------------------------
 OPTION   LOCATION     REMOTE SYSTEM                            Page  2  of  2
   2      P7089171       P7089171


                                                 Cmd5-Restart CNFIGICF
 Cmd7-End     Cmd8-Reset     Cmd19-Cancel        Roll-Page    COPR IBM Corp. 1986
```

Press Enter.

9. Take the default values for the parameters on display 30.0.

```
 30.0                  REMOTE LOCATION DEFINITION                TRN1SBS     #1

       Remote system IBMM3601              Remote location P7089171

 1. Activate location at ENABLE? . . . . . . . . . . . . . . . Y,N  Y

 2. Send alerts to this location?  . . . . . . . . . . . . . . Y,N  N


 Cmd3-Previous display       Cmd5-Restart CNFIGICF
 Cmd7-End                    Cmd19-Cancel                 COPR IBM Corp. 1986
```

Press Enter.

10. Take the default values for the parameters on display 41.0.

```
41.0            APPC AND APPN LOCATION DEFINITION              TRN1SBS     #1

      Remote system IBMM3601             Remote location P7089171

1. Single-session location? . . . . . . . . . . . . . . . . . . Y,N  N

2. Stay operational?  . . . . . . . . . . . . . . . . . . . . . Y,N  Y



Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

11. On display 42.0, select option 1 to create a new session group with the name QPCSUPP.

```
 42.0                     SESSION GROUP SELECTION              TRN1SBS     #1

      Remote system IBMM3601             Remote location P7089171

1. Select from the following options:
     1-Create     3-Create from existing           5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 1
2. Session group name . . . . . . . . . . . . . . . . . . . . . . . . . . QPCSUPP
3. Existing session group name  . . . . . . . . . . . . . . . . . . .
4. Default session group name . . . . . . . . . . . . . . . . . . . . . *BLANK
-------------------------------------------------------------------------------
OPTION   SESSION GROUP
            *BLANK



Cmd3-Previous display       Cmd5-Restart CNFIGICF           Cmd7-End
Cmd8-Reset                  Cmd19-Cancel                    COPR IBM Corp. 1986
```

Press Enter.

12. After the session group QPCSUPP has been created successfully.

```
 42.0                    SESSION GROUP SELECTION              TRN1SBS     #1

      Remote system IBMM3601             Remote location P7089171

 1. Select from the following options:
     1-Create     3-Create from existing           5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . .
 2. Session group name . . . . . . . . . . . . . . . . . . . . .
 3. Existing session group name  . . . . . . . . . . . . . . . .
 4. Default session group name . . . . . . . . . . . . . . . . .  *BLANK
-------------------------------------------------------------------------------
 OPTION   SESSION GROUP
            *BLANK
            QPCSUPP





 Cmd3-Previous display       Cmd5-Restart CNFIGICF          Cmd7-End
 Cmd8-Reset                  Cmd19-Cancel                   COPR IBM Corp. 1986
```

We may exit CNFIGICF by pressing Cmd 7 three times.

This completes the steps needed to create a subsystem member.

11.6 SSP Security

Refer to 8.6, “SSP Security” on page 178 on how to create a null ID on the SSP machine.

11.7 Communications Manager/2 Configuration

The PC needs to have a token-ring adapter installed. In this example, we used an IBM 16/4 Token-Ring Adapter/A.

The LAPS program must be installed and configured before Communications Manager/2 is configured. When configuring LAPS, make sure that you do the following:

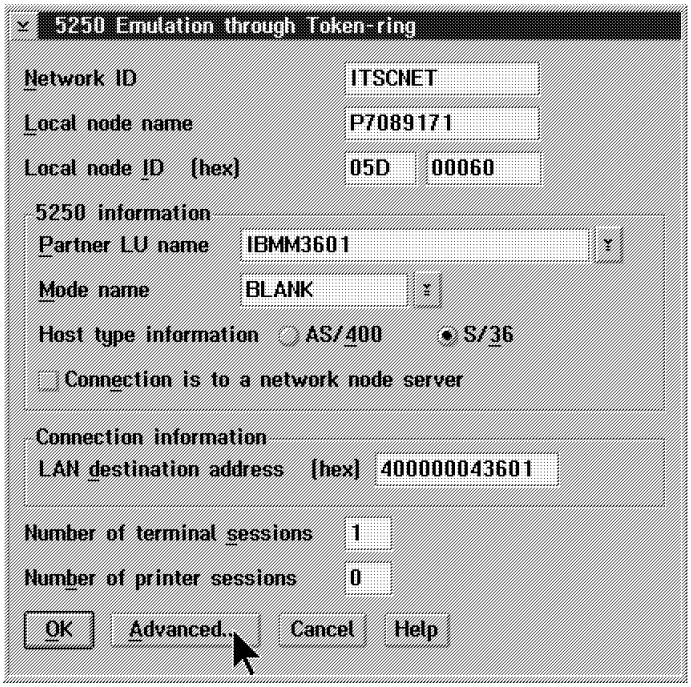
1. Select LAN adapter and protocol support.
2. Select Token-Ring Network Address.
3. Update the Network adapter address as 400030000241 which is the PC’s local LAN address.

This example was done with Communications Manager/2 Version 1.11. Use the configurations steps in the following list to link the PC to IBMM3601.

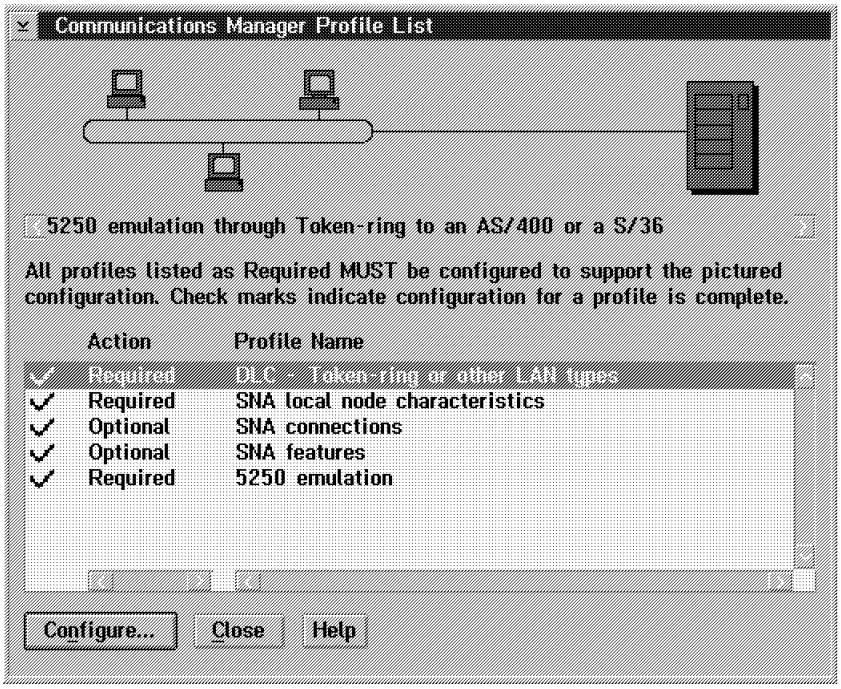
1. Click on the Communications Manager Setup icon.
2. Click on the Setup button.
3. Type the name of your configuration and click on the OK button.
4. Click on the Yes button when you see messages asking you if you want to create the configuration and if the configuration file is used for your workstation.
5. Select the option, 5250 Emulation through Token-Ring as the Communications D
6. Use information in Table 12 on page 225 for the following prompts.

Table 12. 5250 Emulation through Token-ring Parameters	
Parameter	**Value**
Network ID	ITSCNET
Local node name	P7089171
Local node id (hex)	05D 00060
Mode name	BLANK
Host type information	S/36
Connection is to a network node	No
LAN destination address (hex)	400000043601

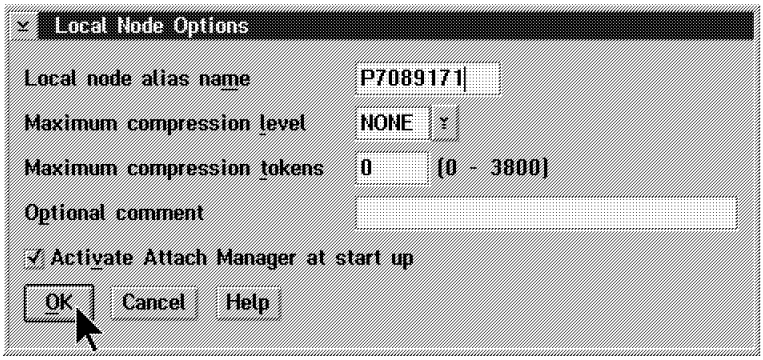
7. Type the following:



8. Click on the Advanced button.
9. At the Communication Manager Profile List window, double-click on the SNA local node characteristics option.



10. At the Local Node Characteristics window, click on the Options button.
11. At the Local Node Options window, change the Local node alias name from 5250LU to P7089171. Click on the OK button. Back at the Local Node Characteristics window, click on the OK button.

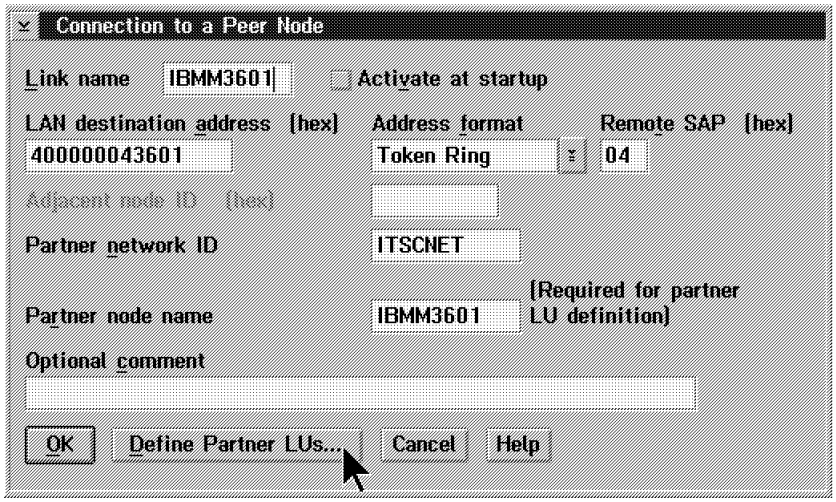


12. At the Communication Manager Profile List window, double-click on the SNA Connections option.
13. At the Connections List window, make sure that the Partner type is To Peer node. Double-click LINK0001.
14. At the Adapter List display, double-click on Token-ring or other LAN types.
15. At the Connection to a Peer Node display, use the information in Table 13 for the following prompts.

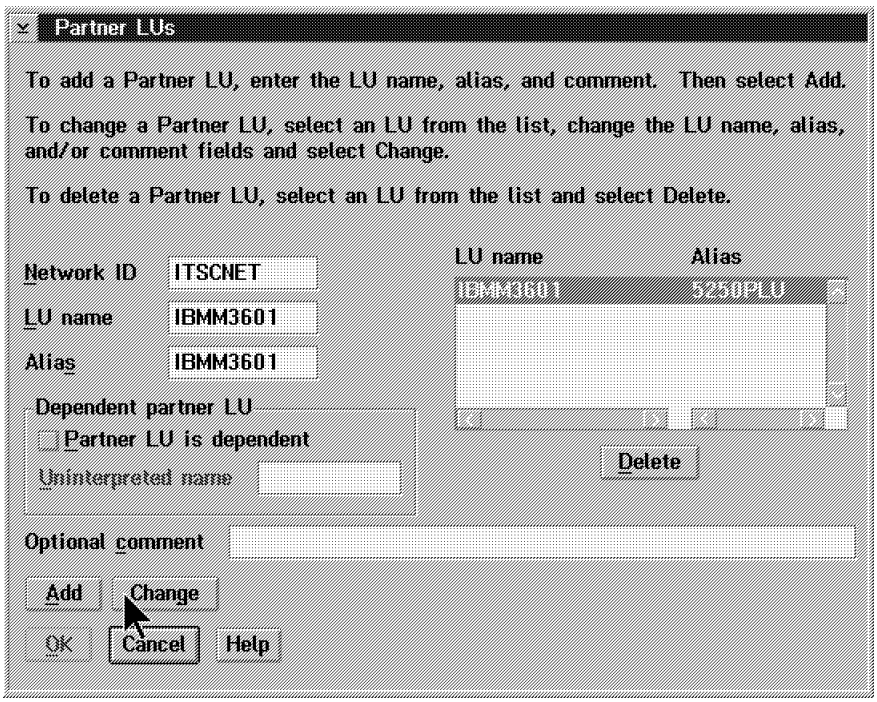
Table 13 (Page 1 of 2). Connection to Peer Node Parameters

Parameter	Value
Link Name	IBMM3601
LAN destination address	400000043601
Address format	Token-Ring

Table 13 (Page 2 of 2). Connection to Peer Node Parameters	
Parameter	**Value**
Remote SAP	04
Partner network ID	ITSCNET

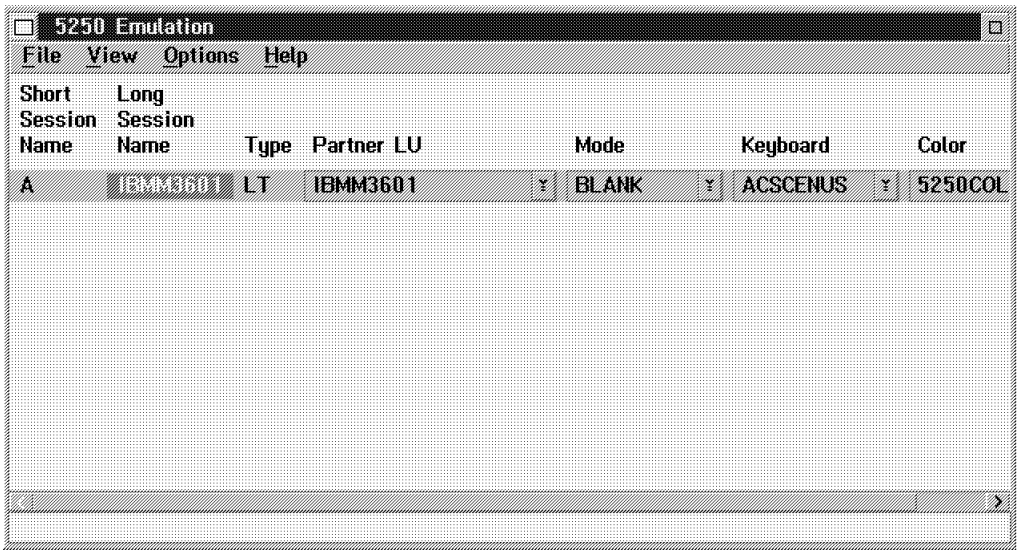


16. Click on the Define Partner LUs button.
17. At the Partner LUs window, double-click on the LU named IBMM3601 in the option box. Change the Alias from 5250PLU to IBMM3601. Make sure that you type IBMM3601 in uppercase only. Click on the Change button. Click on the OK button.



18. Back at the Connection to a Peer Node window, click on the OK button.
19. Close the Communications List window.
20. Click on the OK button.

21. At the Communications Manager Profile List window, double-click the 5250 emulation option.
22. Double-click the letter A under the Long Session Name column. At the 5250 Logical Terminal - window, click on the Save As button. At the Save As window, change the Long Session name to IBMM3601. Click on the OK button.
23. Change the Partner LU name from 5250PLU to IBMM3601 using the list box. Close the 5250 Emulation window.



24. Close the Communications Manager Profile List window.
25. Close the Communications Manager Configuration Definition window.
26. Close the Communications Manager Setup window.

11.8 Client Access/400 Installation

Install Client Access/400 for OS/2 (traditional non-optimized client) on the PC.

1. Insert the installation diskette into your A drive.
2. Type A:INSTALL at the command prompt and press Enter twice. Change the Accept Default Configuration parameter to No. Press Enter.
3. At the Client Access/400 Installation (Startup Options) display, press Enter.
4. At the Client Access/400 Installation (PC to AS/400 Connection) display, change the PC location name to P7089171 and the name of the system to connect to as IBMM3601. Press Enter.
5. When the Copy Installation Files window appears, press Enter to confirm that you want to continue with the installation.
6. At the end of the copying process, a completion display is shown. Follow the instructions on the display.

You should have the following entries in your CONFIG.PCS file in the PCSOS2 directory.

```
SFLR 1,I,,IBMM3601
UPDT I:\QIWSOS2,C:\PCSOS2,S,,,Client Access/400
RTY2 CMGR
LCLN P7089171
RMTN IBMM3601
```

11.9 Operation

You need to run ENABLE to start the subsystem on the SSP machine. Note that you may include the ENABLE procedure into either your #STRTUP1 or #STRTUP2 OCL procedure in #LIBRARY to automatically start up the subsystem at IPL.

```
                              ENABLE PROCEDURE                  Optional-*

                  Enables an Interactive Communications Feature,
                  MSRJE, or 3270 device emulation subsystem


 Subsystem configuration name  . . . . . . . . . . . . . . . . . .  TRN1SBS

 Name of library . . . . . . . . . . . . . . . . . . . . . . . . .  #CNFGLIB

 Line number . . . . . . . . . . . . . . . . . . . . . . .  1-10  10         *

 Display values in effect
   for this subsystem  . . . . . . . . . . . . . . . . NOSHOW,SHOW  NOSHOW

 Remote location name  . . . . . . . . . . . . . . . . . . . . .            *

 Line member name  . . . . . . . . . . . . . . . . . . . . . . .            *




 Cmd3-Previous menu    Cmd4-Put on job queue                COPR IBM Corp. 198
```

To check the status of the subsystem, run the command D I on the command line. After Client Access has been successfully started at the PC as well, the display should look as follows.

```
 Complete                      SUBSYSTEM STATUS                            #1

CONFIG   CONFIG    LINE  LOCATION   STATUS       COMMUNI-   --NO. OF SESSIONS--
NAME     TYPE            NAME                    CATING     EVOKED     ACQUIRED
TRN1SBS  APPC       10   P7089171   Enabled        Y        ---         ---





  Cmd7-End      Cmd8-Help     Cmd15-Update      Cmd16-Restart      Roll-Page
-------------------------------------------------------------------------------
                                    CNTLLINE
                       Start or stop communication lines
    1. Start a subsystem
    2. Stop a subsystem                 6. Control APPC
    3. Start monitoring a BSC line      7. Control alert support
    4. Stop monitoring a BSC line

 Ready for option number or command


                                                          COPR IBM Corp. 1985
```

The subsystem should be at a Status of Enabled and should show Communicating-Y.

At the PC, start Communications Manager/2. When the USERID and password prompts appear for the Signon to IBMM3601, just press Enter.

After that, start Client Access.

11.10 Matching Parameters

```
M36                                      PC
---                                      --
CHGSYSVL                                     PROTOCOL.INI
        LINESPD    4                           (LANDD_nif)
                                          6 <------ NETADDRESS = "400030000241"

SETCOMM                                      COMMUNICATIONS MANAGER/2
       TRN Address 400000043601-> 1          5250 Emulation thru Token-Ring
                                                 Local Node name  P7089171
                                          8 <------ Local LU Alias   P7089171
                                                 Local Node ID    05D 00060
CNFIGICF                                  4 <------------------------'  |
  4.0 SNA/TRN Line member                 5 <---------------------------'
 ,----------> TRN1LINE                           Partner LU name  IBMM3601
 |                                               Host Type information S/36
 |12.0 SNA Line                                  LAN destination address
 | 6.  XID Local in hex 00001               1 <-----------------------400000043601
 | 7.  SSAP value       04 ----------> 2
 |                                            Connection to a Peer Node
 |12.5 Remote System                         2 <------ Remote SAP       04
 | 2.  Name            P7089171 ---> 3
 |                                            Partner LUs
 |13.0 Remote System Attribute                   Alias            IBMM3601
 | 3.  Block ID in hex   05D ----------> 4                            ^
 | 4.  XID remote in hex 00060 ---> 5                                 |
 |                                              CONFIG.PCS            |
 |13.5 Remote System                              RTY2 CMGR           |
 | 1.  Adapt. Addr. 400030000241 --> 6      8 <-- LCLN P7089171       |
 | 2.  DSAP value   04                            RMTN IBMM3601 <-------'
 |
 |21.0 SNA Subsystem   TRN1SBS
 | 1.  Subsystem type  APPC
 '->2.  Line member     TRN1LINE


 22.0 Subsystem Member Definition
  1.  Local location name
                     IBMM3601 --> 7

 29.0 Remote Location Selection
  2.  Remote loc. name P7089171--> 8
      Remote sys. name P7089171--> 3

 42.0 Session Group Selection
  2.  Session Group QPCSUPP
```

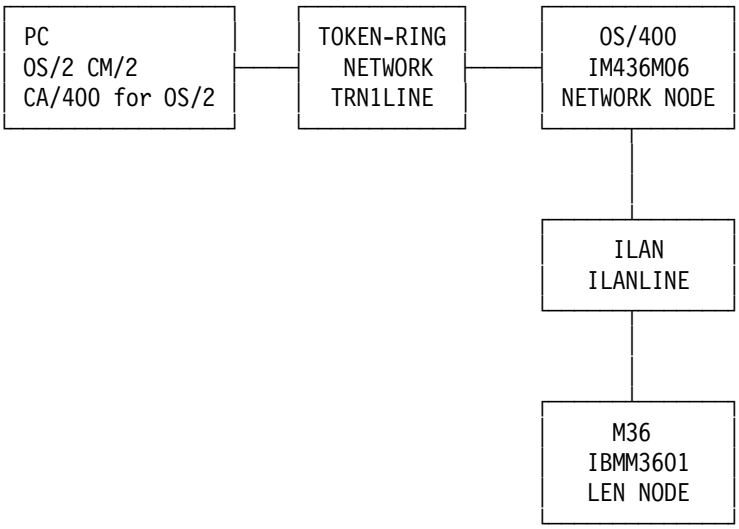
Chapter 12. Client Access/400 for OS/2 to M36 through OS/400 on Token-Ring

This chapter covers the configuration steps necessary to set up Client Access/400 for OS/2 on a PC in a token-ring network to access both OS/400 and the SSP through the ILAN. The OS/400 APPN routing capability is used by the PC to access the M36 machine.

Note: In this chapter, ″M36″ is used as an abbreviation for ″SSP machine.″

This configuration may be used for the following reasons:

- OS/2 is loaded on the PC.
- The PC is used for any of the following Client Access functions on either OS/400 or the SSP machine:
  1. Shared folders
  2. Organizer
  3. File transfer
  4. Virtual print
  5. Text assist
  6. Workstation function
  7. Messaging



You **must** review the ″Description and Overview″ chapter in *Advanced 36 Coexistence User's Guide*, SC21-8386, to understand any Client Access/400 function restrictions when running to an SSP machine versus running to OS/400.

12.1 System Requirements

The following are required on the Model 436:

1. OS/400 with an SSP machine configured
2. A token-ring adapter
3. PC Support/36 base
4. PC Support/36 IBM Token-Ring network support
5. PC Support/36 Workstation feature
6. Base communications support
7. Extended communications support
8. LAN communications support

The following are required on the PC:

1. OS/2
2. IBM LAN Adapter and Protocol Support (LAPS)
3. Communications Manager/2
4. A token-ring adapter
5. Client Access/400 for OS/2

12.2 OS/400 Definition for PC

Refer to 9.2, “OS/400 Definition for PC” on page 184 for information on how to create definitions for the PC in OS/400.

12.3 OS/400 Definition for SSP Machine

Refer to 9.3, “OS/400 Definition for SSP” on page 185 for information on how to create definitions for the SSP machine in OS/400.

12.4 SSP Machine ILAN Line Definition

Refer to 9.4, “M36 ILAN Line Definition” on page 185 for information on how to configure the line member for the link from OS/400 to the SSP machine through ILAN.

12.5 SSP Machine ILAN Subsystem Definition

Refer to 9.5, “M36 ILAN Subsystem Definition” on page 189 for information on how to configure the subsystem member for the OS/400 and PC links to the SSP machine.

12.6 SSP Security

Refer to 8.6, “SSP Security” on page 178 for information on how to create a null id on the SSP machine.

12.7 Communications Manager/2 Configuration

The PC needs to have a token-ring adapter installed. In this example, we used an IBM 16/4 Token-Ring Adapter/A.

The LAPS program must be installed and configured before Communications Manager/2. When configuring LAPS, make sure that you customize the PC’s token-ring adapter address by doing the following:

1. Select LAN adapter and protocol support.
2. Select Token-Ring Network Address.
3. Update the network adapter address as 400030000241 which is the PC’s local LAN address.

This example was done with Communications Manager/2 Version 1.11.

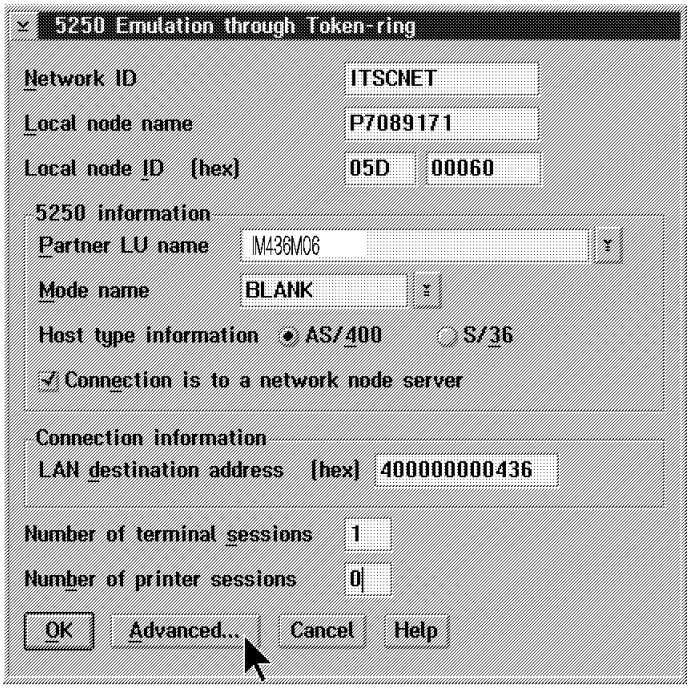
Use the following Communications Manager/2 configuration steps to link the PC to IM436M06.

1. Click on the Communications Manager Setup icon.
2. Click on the Setup button.
3. Type the name of your configuration and click on the OK button.
4. Click on the Yes button when you see messages asking you if you want to create a configuration and if the configuration file is used for your workstation.
5. Select the option, 5250 Emulation through Token-ring as the Communications Definitions value. Click on the Configure button.
6. Use the information in Table 14 for the subsequent prompts.

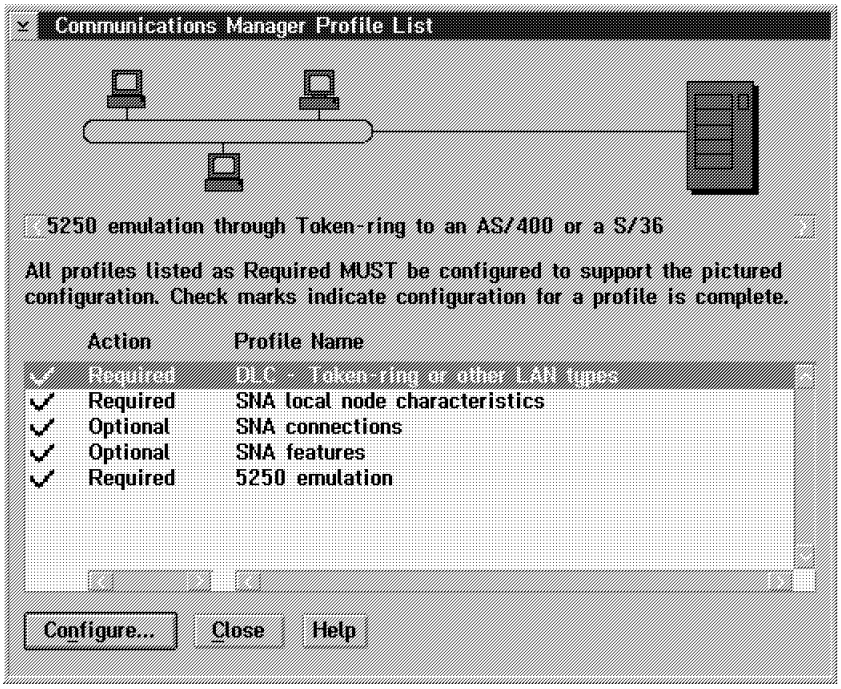
Table 14. 5250 Emulation through Token-Ring Parameters

Parameter	Value
Network ID	ITSCNET
Local node name	P7089171
Local node id (hex)	05D 00060
Mode name	BLANK
Host type information	AS/400 system
Connection is to a network node.	YES
LAN destination address (hex)	400000000436

7. Type the following:

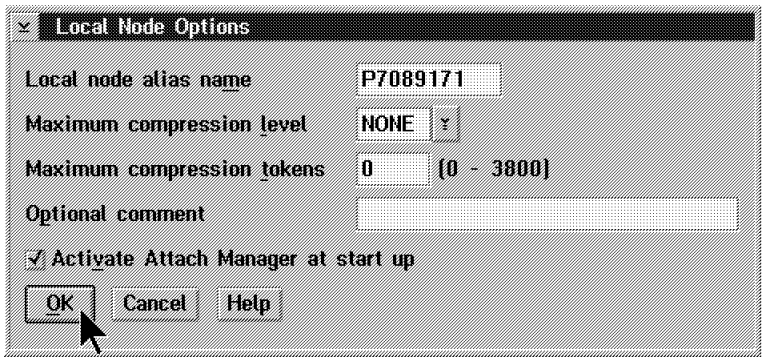


8. Click on the Advanced button.
9. On the Communication Manager Profile List window, double-click on the SNA local node characteristics option.



10. On the Local Node Characteristics window, click on the Options button. Change the parameter Local node alias name from 5250PLU to P7089171 on the Local Node Options windows.

    Make sure that the value typed for the Local node alias name parameter is in uppercase. Click the OK button.

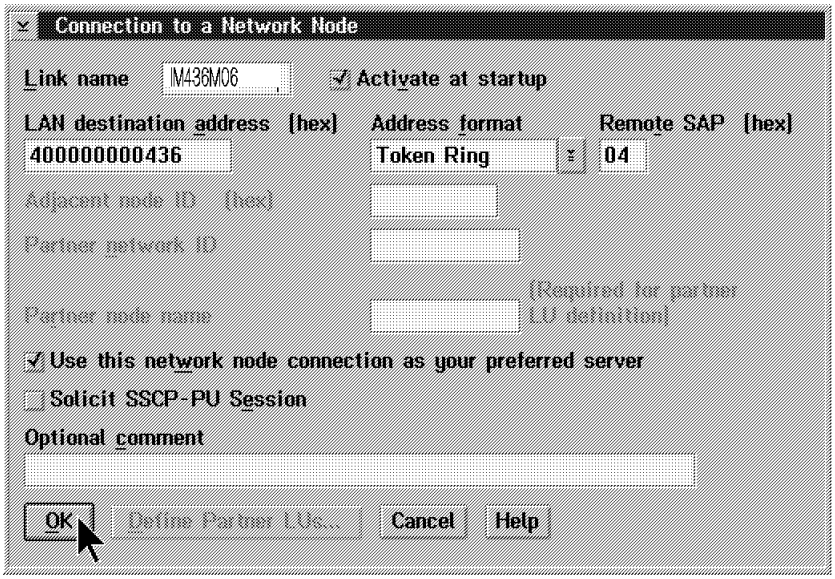


11. Back on the Local Node Characteristics window, click the OK button.
12. On the Communication Manager Profile List window, double-click on the SNA Connections option.
13. On the Connections List window, make sure that the Partner type is To Network node. Double-click LINK001.
14. On the Adapter List display, double-click on Token-ring or other LAN types.
15. Use the information in Table 15 for the subsequent prompts.

Table 15. Connection to Network Node Parameters

Parameter	Value
Link Name	IM436M06
Activate at startup	YES

16. On the Connection to a Network Node display, enter the parameter values as shown:

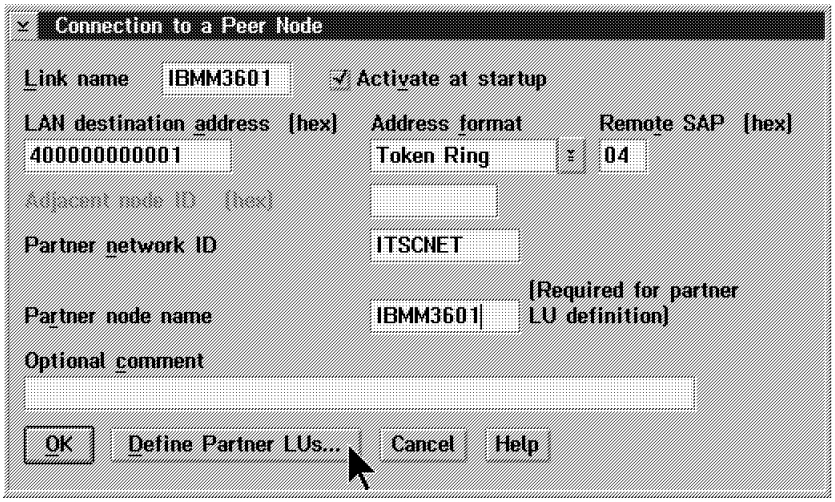


17. Click on the OK button.
18. Back on the Connections List window, change the Partner Type to "To Peer Node". Click on the Create button.
19. Leave the Adapter Type on the Adapter List window as Token-Ring or other LAN types. Click on the Continue button.

20. Use the information in Table 16 on page 236 for the subsequent prompts.

Table 16. Connection to Peer Node Parameters	
Parameter	**Value**
Link Name	IBMM3601
Activate at startup	YES
LAN destination address	400000000001
Address format	Token-Ring
Remote SAP	04
Partner network ID	ITSCNET
Partner node name	IBMM3601

21. Fill in the parameter values on the Connection to a Peer Node window as follows:

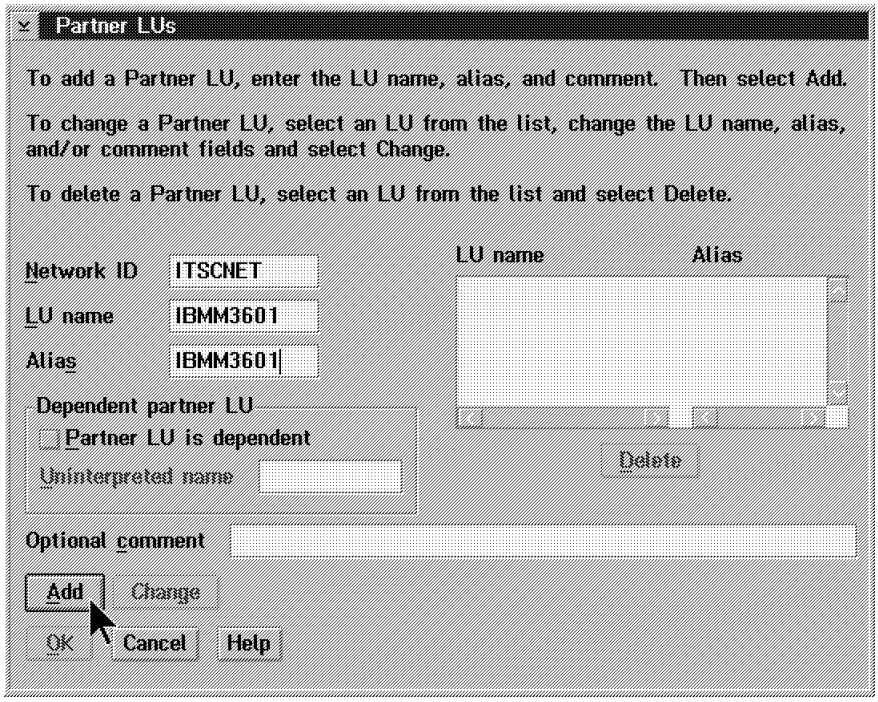


22. Click on the Define Partner LUs button.

23. Use the information in Table 17 for the subsequent prompts.

Table 17. Partner LUs Parameters	
Parameter	**Value**
Network ID	ITSCNET
LU name	IBMM3601
Alias	IBMM3601

24. On the Partner LUs window, fill in the parameters as follows:



Make sure that the value typed for the Alias parameter is in uppercase.

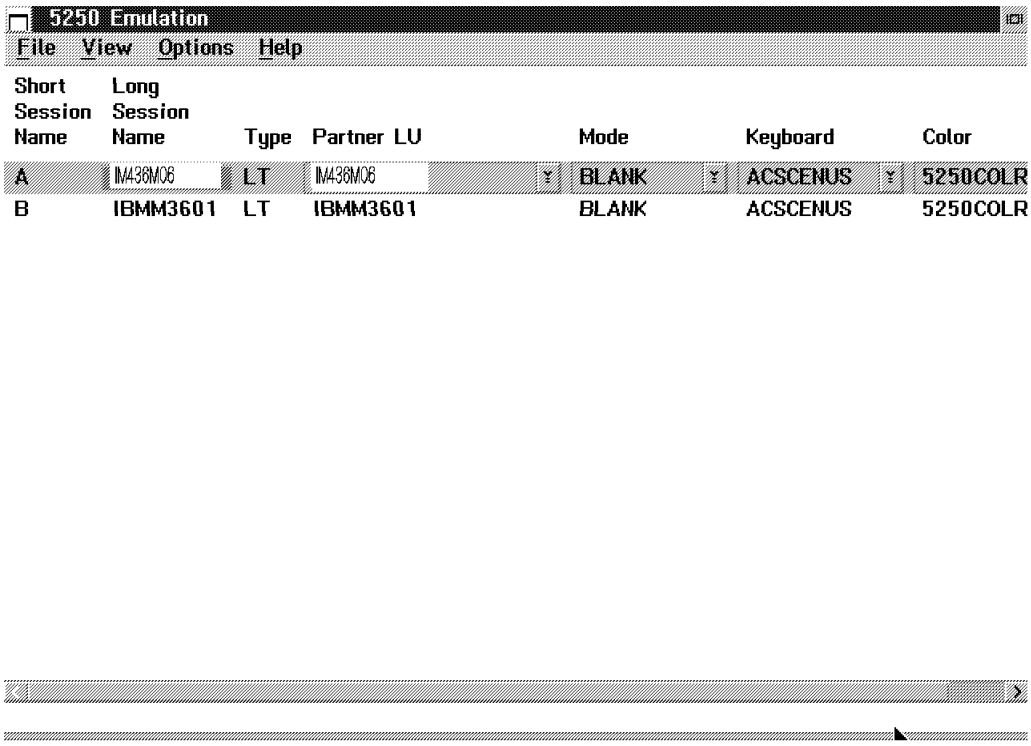
25. Click on the Add button, then the OK button followed by the OK button on the Connection to a Peer Node window. Back on the Connections List window, click on the close button.
26. On the Communications Manager Profile List window, double-click on the SNA features option.
27. On the SNA Features List window, click on the Partner LUs option under Features. Double-click on the 5250PLU definition.
28. Use the information in Table 18 for the subsequent prompts.

Table 18. Partner LU parameters

Parameter	Value
Fully qualified LU name	ITSCNET.IM436M06
Alias	IM436M06

29. On the Partner LU display, enter the parameter values as shown:

30. Click on the OK button.
31. Back on the SNA Features List display, click on the Close button.
32. On the Communications Manager Profile List window, double-click the 5250 emulation option.
33. Double-click the letter A under the Long Session Name column. On the 5250 Local Terminal - window, click on the Save As button. On the Save As window, change the Long Session name to IM436M06. Click on the OK button.
34. Click on the Partner LU listbox named 5250PLU. Change the Partner LU name to IM436M06.
35. Click on the Long Session name IM436M06.
36. Select File from the window menu bar and choose New to create a new 5250 session for IBMM3601. On the Session Type window, leave the Session type as logical terminal and click on the OK button.
37. On the 5250 Logical Terminal window, change the host type to S/36. Click on the Save as button. On the Save as window, type the Long Session Name as IBMM3601. Click on the OK button.
38. Back on the 5250 emulation window, choose the Partner LU for this new session as IBMM3601 from the list box. Close the 5250 emulation window.



39. Close the Communications Manager Profile List window.
40. Close the Communications Manager Configuration Definition window.
41. If asked if you want to make this profile your default profile, answer appropriately.
42. Click on the OK button on the Communications Manager Completion window.
43. Close the Communications Manager Setup window.

This completes the configuration tasks for the PC Communications Manager/2.

12.8 Operation

Vary on the APPC controller and device in OS/400 for the link to the SSP machine. Use the WRKCFGSTS command to check on the status of the link. If the link to the M36 has been started successfully after the SSP subsystem has also been started, the WRKCFGSTS display should look similar to this:

```
                        Work with Configuration Status                IM436M06
                                                          08/15/95  17:20:00
Position to  . . . . .                Starting characters

Type options, press Enter.
  1=Vary on   2=Vary off   5=Work with job   8=Work with description
  9=Display mode status ...

Opt  Description       Status                -------------Job--------------
     QILANM3601        ACTIVE
       IBMM3601        ACTIVE




                                                                      Bottom
Parameters or command
===>
F3=Exit   F4=Prompt   F12=Cancel   F23=More options   F24=More keys
```

Vary on the APPC controller and device in OS/400 for the link to the PC. Use the WRKCFGSTS command to check on the status of the link. If the link to the PC has been started successfully after Communications Manager/2 has also been started, the WRKCFGSTS display should look similar to this:

```
                        Work with Configuration Status                IM436M06
                                                          11/30/95  15:27:38
Position to  . . . . .                Starting characters

Type options, press Enter.
  1=Vary on   2=Vary off   5=Work with job   8=Work with description
  9=Display mode status ...

Opt  Description       Status                -------------Job--------------
     ITSCTRN           ACTIVE
       P7089171        ACTIVE
         P7089171      ACTIVE
           BLANK       ACTIVE/TARGET         P7089171    WWCHIA      888888




Parameters or command
===>
F3=Exit   F4=Prompt   F12=Cancel   F23=More options   F24=More keys
```

Enable the Token-Ring subsystem in SSP by using the ENABLE procedure. Note that you may include the ENABLE procedure into either your #STRTUP1 or #STRTUP2 OCL procedure in #LIBRARY to automatically start up the subsystem at IPL.

```
                              ENABLE PROCEDURE                  Optional-*

                  Enables an Interactive Communications Feature,
                  MSRJE, or 3270 device emulation subsystem


 Subsystem configuration name  . . . . . . . . . . . . . . . . . .  ILANSBS

 Name of library . . . . . . . . . . . . . . . . . . . . . . . . .  #CNFGLIB

 Line number . . . . . . . . . . . . . . . . . . . . . . .  1-10  15        *

 Display values in effect
   for this subsystem  . . . . . . . . . . . . . . . . NOSHOW,SHOW  NOSHOW

 Remote location name  . . . . . . . . . . . . . . . . . . . . . .            *

 Line member name  . . . . . . . . . . . . . . . . . . . . . . . .            *




 Cmd3-Previous menu    Cmd4-Put on job queue                COPR IBM Corp. 1986
```

The subsystem should be communicating with OS/400 before you attempt to connect the PC to the SSP machine. To check the status of the subsystem, run D I on the command line.

```
 Complete                       SUBSYSTEM STATUS                            #2

CONFIG   CONFIG    LINE  LOCATION   STATUS       COMMUNI-   --NO. OF SESSIONS--
NAME     TYPE            NAME                    CATING     EVOKED     ACQUIRED
ILANSBS  APPC       15   IM436M06  Enabled          Y        ---          ---
                         P7089171  Enabled          N        ---          ---




  Cmd7-End      Cmd8-Help     Cmd15-Update      Cmd16-Restart      Roll-Page
--------------------------------------------------------------------------------
                                   CNTLLINE
                        Start or stop communication lines
    1. Start a subsystem
    2. Stop a subsystem                6. Control APPC
    3. Start monitoring a BSC line     7. Control alert support
    4. Stop monitoring a BSC line

 Ready for option number or command


                                                          COPR IBM Corp. 1985
```

The subsystem should be at a Status of Enabled and should show Communicating - Y.

On the PC, start Communications Manager/2. When prompted for an OS/400 USERID, sign on with one that is enrolled in the OS/400 system directory. When prompted for an SSP USERID, do not type anything in that window. Just press Enter. This allows you to assume the *NULL USERID that you have already setup.

After Communications Manager/2 has been successfully started, you may start Client Access/400. When prompted for USERIDs, sign on as you did when you started Communications Manager/2.

12.9 Matching Parameters

1. OS/400 - PC (ITSCTRN)

```
OS/400                                      PC
------                                      --
TRLAN LINE DESCRIPTION                      COMMUNICATIONS MANAGER/2
┌── LIND(ITSCTRN)                             LOCAL NODE NAME:
│   ADPTADR(400000000436) ──────► 1      2 ◄──────────────── P7089171
│                                             LOCAL NODE ALIAS NAME:
│ APPC CONTROLLER DESCRIPTION             7 ◄──────────────── P7089171
│   CTLD(P7089171)                            LOCAL NODE ID:
│   LINKTYPE(*LAN)                        4 ◄──────────────── 05D 00060
└── SWTLINLST(ITSCTRN)
    RMTNETID(*NETATR)                           LINK NAME : IM436M06
    RMTCPNAME(P7089171) ──────► 2               NODE TYPE : NETWORK NODE
    ADPTADR(400030000241) ────► 3               FULLY QUALIFIED LU NAME:
    APPN(*YES)                            6,5 ◄──────────────── ITSCNET.IM436M06
    EXCHID(05D00060) ─────────► 4               PARTNER LU ALIAS:
                                            8 ◄──────────────── IM436M06
                                                NETWORK NODE ADDRESS:
NETWORK ATTRIBUTES                          1 ◄──────────────── 400000000436
  LOCAL LOCATION NAME :
          IM436M06 ─────────► 5
  LOCAL NETWORK ID :                        PROTOCOL.INI
          ITSCNET ──────────► 6               (LANDD_nif)
                                            3 ◄──────── NETADDRESS = "400030000241"

                                            CONFIG.PCS
                                              RTYP CMGR
                                            7 ◄── LCLN P7089171
                                            8 ◄── RMTN IM436M06
                                                  RMTN IBMM3601
```

2. OS/400 - M36 & PC - M36 (ILAN)

```
OS/400                                      M36
------                                      ---
CRTCTLAPPC                                  SETCOMM
┌─ CTLD(QILANM3601)                     13 ◄── TRN Address 400000000001
│  LINKTYPE(*ILAN)
│  RMTNETID(*NETATR)                       CNFIGICF
│  RMTCPNAME(IBMM3601) ──────► 1             4.0 SNA/TRN Line member
│  EXCHID(03E00001) ──────► 2                          ILANLINE ──────┐
│  LAN DSAP(08) ──────► 3                                             │
│  LAN SSAP(04) ──────► 4                   12.0 SNA Line             │
│  APPN(*YES)                            2 ◄── 6.  XID Local in hex 00001
│  NODETYPE(*LENNODE)                    3 ◄── 7.  SSAP value       08 │
│                                                                     │
│ CRTDEVAPPC                                12.5 Remote System        │
│  DEVD(IBMM3601)                        8 ◄── 2.  Name            IM436M06──┐
│  RMTLOCNAME(IBMM3601) ──────► 1                                     │   │
│  LCLLOCNAME(IM436M06) ──────► 5           13.0 Remote System Attribute │
│  CTL(QILANM3601)                           3.  Block ID in hex   056  │
└─ MODE(BLANK) ──────► 6                     4.  XID remote in hex 00000 │
   APPN(*YES)                                                        │   │
                                          13.5 Remote System         │   │
CHGNETA                                    1.  Adapt. Addr. 400000000000 │
  LCLCPNAME(IM436M06) ──────► 8        4 ◄── 2.  DSAP value   04     │   │
                                                                    │   │
                                          21.0 SNA Subsystem   ILANSBS │
COMMUNICATIONS MANAGER/2                   1.  Subsystem type  APPC │   │
  LOCAL NODE NAME :                        2.  Line member     ILANLINE─┘
              P7089171 ──────► 9                                    │   │
  LOCAL NODE ALIAS NAME                                             │   │
              P7089171 ──────► 10         22.0 Subsystem Member Definition │
                                           1.  Local location name  │   │
  LINK NAME : IM436M06                 1 ◄──────────────────────── IBMM3601 │
  NODE TYPE : NETWORK NODE                                          │   │
  FULLY QUALIFIED LU NAME                 29.0 Remote Location Selection │
      ITSCNET.IM436M06 ──────► ,5      5 ◄── 2.  Remote loc. name IM436M06 │
  PARTNER LU ALIAS :                           Remote sys. name IM436M06─┘
              IM436M06 ──────► 11                                   │
  LAN DESTINATION ADDRESS                 29.0 Remote Location Selection │
           40000000436                 9 ◄── 2.  Remote loc. name P7089171 │
                                                Remote sys. name IM436M06─┘
  LINK NAME : IBMM3601
  NODE TYPE : PEER NODE
  FULLY QUALIFIED LU NAME :               42.0 Session Group Selection
      ITSCNET.IBMM3601 ──────► ,1      6 ◄── 2.  Session Group *BLANK
  PARTNER LU ALIAS :                           2.  Session Group QPCSUPP
              IBMM3601 ──────► 12
  LAN DESTINATION ADDRESS
           40000000001 ──────► 13


CONFIG.PCS
  RTYP CMGR
  LCLN P7089171 ──────► 10
  RMTN IM436M06 ──────► 11
  RMTN IBMM3601 ──────► 12
```

Chapter 13. Client Access/400 for OS/2 to OS/400 through M36 on Token-Ring

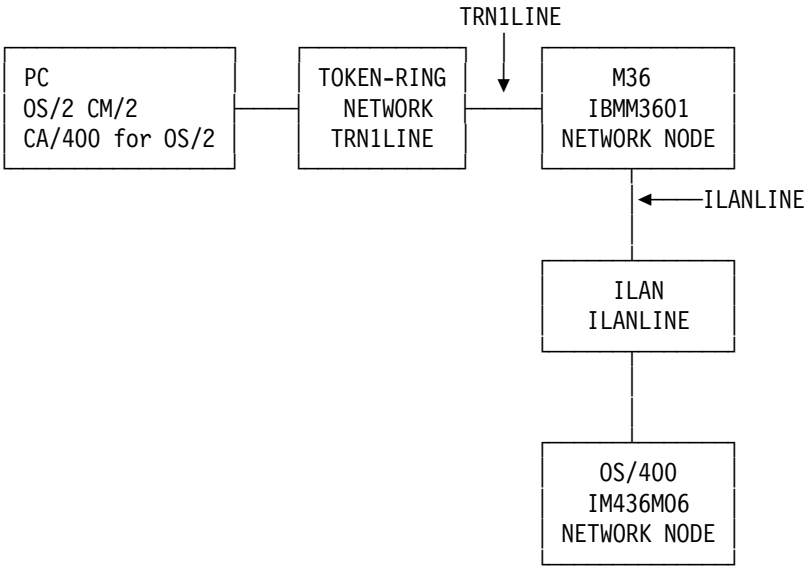
This chapter covers the configuration steps necessary to set up Client Access/400 for OS/2 on a PC in a token-ring network to access both OS/400 and the SSP machine through the ILAN. The SSP machine APPN routing capability is used by the PC to access OS/400.

Note: In this chapter, ″M36″ is used as an abbreviation for ″SSP machine.″

This configuration may be used for the following reasons:

- OS/2 is loaded on the PC.
- Communications Manager/2 or Communications Manager/400 is loaded on the PC.
- The PC is used for any of the following Client Access functions to either OS/400 or SSP:
  1. Shared folders
  2. Organizer
  3. File transfer
  4. Virtual print
  5. Text assist
  6. Workstation function
  7. Messaging

  When connecting to OS/400, the client workstation user has the following additional functions:
  - ODBC to DB2/400
  - Remote SQL to DB2/400
  - Data Queue programming APIs
  - Submit Remote Command to OS/400



You **must** review the ″Description and Overview″ chapter in *Advanced 36 Coexistence User's Guide*, SC21-8386, to understand any Client Access/400 function restrictions when running to an SSP machine versus running to OS/400.

13.1 System Requirements

The following are required on the Model 436:

1. OS/400 with an SSP machine configured.
2. A token-ring adapter.
3. For OS/400, Client Access/400 for OS/2 - Options *BASE, 1, 3.
4. For the SSP machine:
   - Base communications support
   - Extended communications support
   - LAN Communications support

The following are required on the PC:

1. OS/2
2. IBM LAN Adapter and Protocol Support (LAPS)
3. Communications Manager/2
4. A token-ring adapter
5. Client Access/400 for OS/2

13.2 M36 Configuration

Refer to 7.2, "M36 Configuration" on page 150 for information on how to configure the SSP machine.

13.3 M36 Token-Ring Configuration

Refer to 7.3, "M36 Token-Ring Configuration" on page 153 for information on how to configure the SSP token-ring.

13.4 OS/400 ILAN APPC Controller Description

The following CL program creates the required controller description on the OS/400 for IBMM3601:

```
CRTCTLAPPC CTLD(QILANM3601) LINKNAME(*ILAN) APPN(*YES) +
           RMTNETID(*NETATR) RMTCPNAME(IBMM3601) EXCHID(03E00001) +
           DSAP(08) SSAP(04) NODETYPE(*NETNODE) +
           TEXT('NETNODE CTL FOR IBMM3601')
```

The APPC device description for IBMM3601 is automatically created by OS/400.

13.5 OS/400 Definition for PC

The APPC device description for the PC, P7089171, which is attached to the QILANM3601 controller description is automatically created by OS/400.

13.6 M36 ILAN Line Configuration for OS/400

CNFIGICF is used to configure the token-ring line to OS/400. Refer to 9.4, “M36 ILAN Line Definition” on page 185 for information on how to create an ICF line member on the SSP machine IBMM3601 for IM436M06.

13.7 M36 TRN1LINE Line Configuration for PC

You must use CNFIGICF to configure a line member for the PC link.

1. Type CNFIGICF on the command line and press Enter to get display 1.0. On that display, type the name of the subsystem member and its library. Choose option 1 to create a new member.

```
 1.0           SSP-ICF CONFIGURATION MEMBER DEFINITION                    #1


1. Configuration member name  . . . . . . . . . . . . . . . . . .  TRN1LINE

2. Library name . . . . . . . . . . . . . . . . . . . . . . . . .  #CNFGLIB

3. Select one of the following:
      1. Create new member
      2. Edit existing member
      3. Create new member from existing member
      4. Remove a member
      5. Review a member
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . 1-5  1





Cmd7-End     Cmd19-Cancel
```

   Press Enter.

2. On display 2.0, select option 3 for SNA.

```
 2.0               SSP-ICF CONFIGURATION MEMBER TYPE           TRN1LINE    #1


Select one of the following options:
      1. Intra
      2. BSC
      3. SNA
      4. Async
      5. PC Support/36

   Option: 3





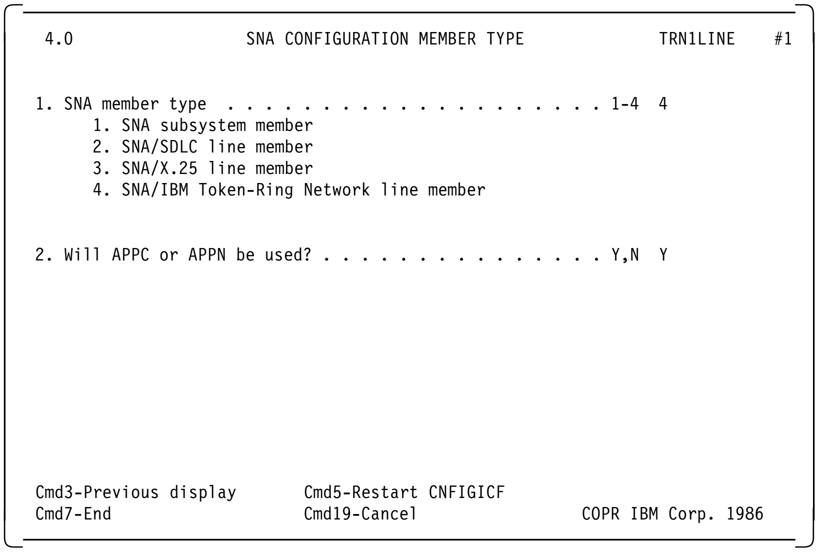




Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                 COPR IBM Corp. 1986
```

Press Enter.

3. On display 4.0, select option 4 to create a token-ring line member and specify that APPC or APPN is used.



```
 4.0                  SNA CONFIGURATION MEMBER TYPE              TRN1LINE    #1


1. SNA member type  . . . . . . . . . . . . . . . . . . . . 1-4  4
      1. SNA subsystem member
      2. SNA/SDLC line member
      3. SNA/X.25 line member
      4. SNA/IBM Token-Ring Network line member


2. Will APPC or APPN be used? . . . . . . . . . . . . . . . Y,N  Y





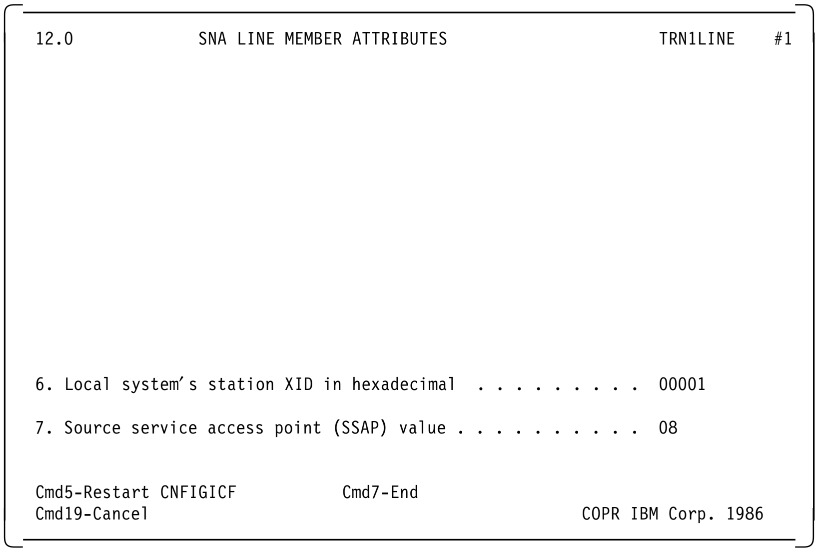





Cmd3-Previous display      Cmd5-Restart CNFIGICF
Cmd7-End                   Cmd19-Cancel                 COPR IBM Corp. 1986
```

Press Enter.

4. On display 12.0, type the Local system′s XID and the SSAP.



```
12.0             SNA LINE MEMBER ATTRIBUTES                      TRN1LINE    #1















6. Local system′s station XID in hexadecimal  . . . . . . . . .  00001

7. Source service access point (SSAP) value . . . . . . . . . .  08


Cmd5-Restart CNFIGICF           Cmd7-End
Cmd19-Cancel                                            COPR IBM Corp. 1986
```

Press Enter.

5. On display 12.5, use option 1 to create a remote system named P7089171 for the PC.

```
 12.5                      REMOTE SYSTEM SELECTION             TRN1LINE    #1

1. Select from the following options:
     1-Create     3-Create from existing           5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 1
2. Remote system name . . . . . . . . . . . . . . . . . . . . . . . . . . P7089171
3. Existing remote system name  . . . . . . . . . . . . . . . . . . .
-------------------------------------------------------------------------------
OPTION  REMOTE SYSTEM     OPTION  REMOTE SYSTEM      OPTION  REMOTE SYSTEM


Cmd5-Restart CNFIGICF           Cmd7-End                 Cmd8-Reset
Cmd19-Cancel                                             COPR IBM Corp. 1986
```

Press Enter.

6. On display 13.0, specify that the PC is a Peer system with a block ID of 05D and XID of 00060.

```
13.0                REMOTE SYSTEM ATTRIBUTES                    TRN1LINE    #1

                      Remote system P7089171
1. Remote system type . . . . . . . . . . . . . . . . . . . . . . . . . . 2
  1-Host              2-Peer

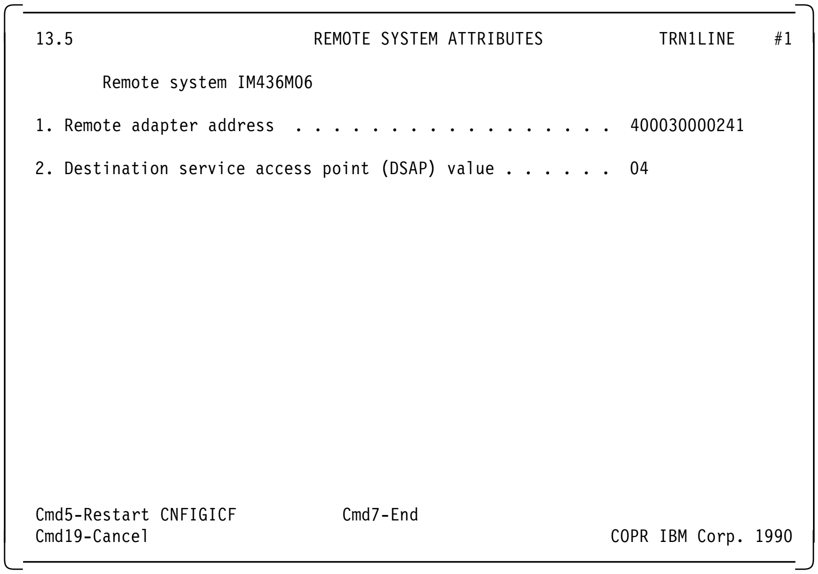

3. Remote system's block ID in hexadecimal  . . . . . . . . . . . . 05D

4. Remote system's station XID in hexadecimal . . . . . . . . . . . 00060


Cmd5-Restart CNFIGICF           Cmd7-End
Cmd19-Cancel                                             COPR IBM Corp. 1986
```

Press Enter.

7. On display 13.5, specify that the remote PC address is 400030000241 and its DSAP is 04.



```
13.5                        REMOTE SYSTEM ATTRIBUTES           TRN1LINE    #1

       Remote system IM436M06

1. Remote adapter address  . . . . . . . . . . . . . . . . .  400030000241

2. Destination service access point (DSAP) value . . . . . .  04














Cmd5-Restart CNFIGICF           Cmd7-End
Cmd19-Cancel                                                COPR IBM Corp. 1990
```

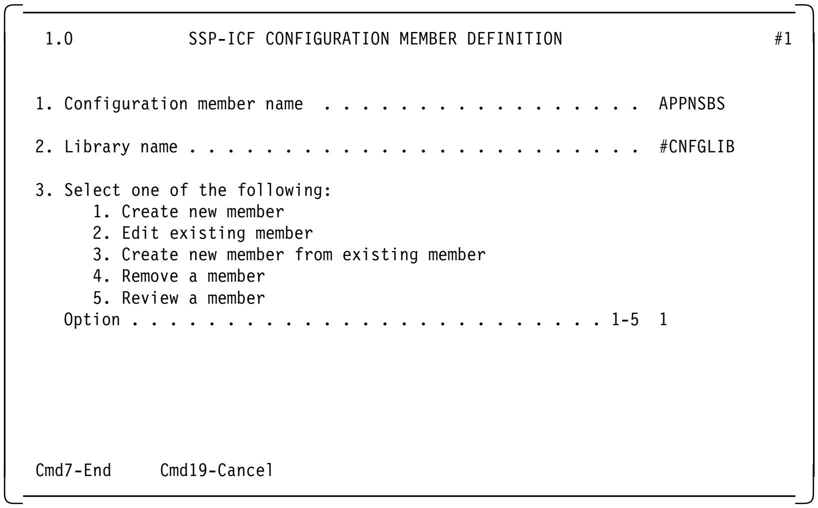
Press Enter. Then press Cmd 7 three times to exit CNFIGICF.

8. This completes the setup required for the TRN1LINE ICF line member.

13.8 M36 APPN Subsystem Configuration

You must use CNFIGICF to configure an APPN subsystem member that defines links to both OS/400 and the PC.

1. Type CNFIGICF on the command line and press Enter to get display 1.0. On that display, type the name of the subsystem member and its library. Choose option 1 to create a new member.



```
 1.0            SSP-ICF CONFIGURATION MEMBER DEFINITION                      #1


1. Configuration member name  . . . . . . . . . . . . . . . . .  APPNSBS

2. Library name . . . . . . . . . . . . . . . . . . . . . . . .  #CNFGLIB

3. Select one of the following:
      1. Create new member
      2. Edit existing member
      3. Create new member from existing member
      4. Remove a member
      5. Review a member
   Option . . . . . . . . . . . . . . . . . . . . . . . . . 1-5  1






Cmd7-End     Cmd19-Cancel
```

Press Enter.

2. On display 2.0, select option 3 for SNA.

```
 2.0              SSP-ICF CONFIGURATION MEMBER TYPE           APPNSBS     #1


Select one of the following options:
      1. Intra
      2. BSC
      3. SNA
      4. Async
      5. PC Support/36

   Option: 3









Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

3. On display 4.0, select option 1 to create a SNA subsystem member.

```
 4.0                SNA CONFIGURATION MEMBER TYPE             APPNSBS     #1


1. SNA member type  . . . . . . . . . . . . . . . . . . . . 1-4  1
      1. SNA subsystem member
      2. SNA/SDLC line member
      3. SNA/X.25 line member
      4. SNA/IBM Token-Ring Network line member









Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

4. On display 21.0, select option 7 to create an APPN subsystem. This makes IBMM3601 an APPN Network Node.

```
21.0              SNA SUBSYSTEM MEMBER SELECTION                APPNSBS     #1



1. Select subsystem type from the following options:
      1. Peer
      2. SNA Upline
      3. SNA 3270
      4. Finance
      5. SNA MSRJE
      6. APPC
      7. APPN
   Option . . . . . . . . . . . . . . . . . . . . . . . . . 1-7  7



Cmd3-Previous display       Cmd5-Restart CNFIGICF
Cmd7-End                    Cmd19-Cancel                COPR IBM Corp. 1986
```

Press Enter.

5. On display 22.0, enter the SSP machine location name and its Network ID.

```
22.0               SUBSYSTEM MEMBER DEFINITION                  APPNSBS     #1

1. Local location name  . . . . . . . . . . . . . . . . . . . .  IBMM3601



5. Network ID . . . . . . . . . . . . . . . . . . . . . . . . .  ITSCNET



Cmd5-Restart CNFIGICF           Cmd7-End
Cmd19-Cancel                                            COPR IBM Corp. 1986
```

Press Enter.

The next step is to define OS/400 IM436M06 on display 28.0. Since IM436M06 is a network node according to its network attribute, select option 2 to define it as one. Press Enter; then type the name of the line member that we have already defined IM436M06 in.

```
28.0            APPN SUBSYSTEM MEMBER DEFINITION              APPNSBS     #1



1. Select one of the following options:
      1. Define locations in non-networking nodes
      2. Define locations in networking nodes
      3. Define locations in nonadjacent single-session nodes
      4. Remove remote locations
      5. Define session groups for multiple-session locations
      6. Define session groups for single-session locations

   Option . . . . . .  2

2. Line member name . . . . . .  ILANLINE





Cmd5-Restart CNFIGICF          Cmd7-End
Cmd19-Cancel                                        COPR IBM Corp. 1986
```

Press Enter.

6. On display 29.0, use option 1 to define a remote location IM436M06 linked to the remote system IM436M06 that we defined in the line member ILANLINE.

```
 29.0                    REMOTE LOCATION SELECTION            APPNSBS     #1

1. Select from the following options:
     1-Create

   Option . . . . . .  1
2. Remote location name . . . . . .  IM436M06
3. Remote system name . . . . . .  IM436M06
4. Existing location name . . . . . .
-------------------------------------------------------------------------------
OPTION   LOCATION     REMOTE SYSTEM                            Page  1  of  1
                        IM436M06





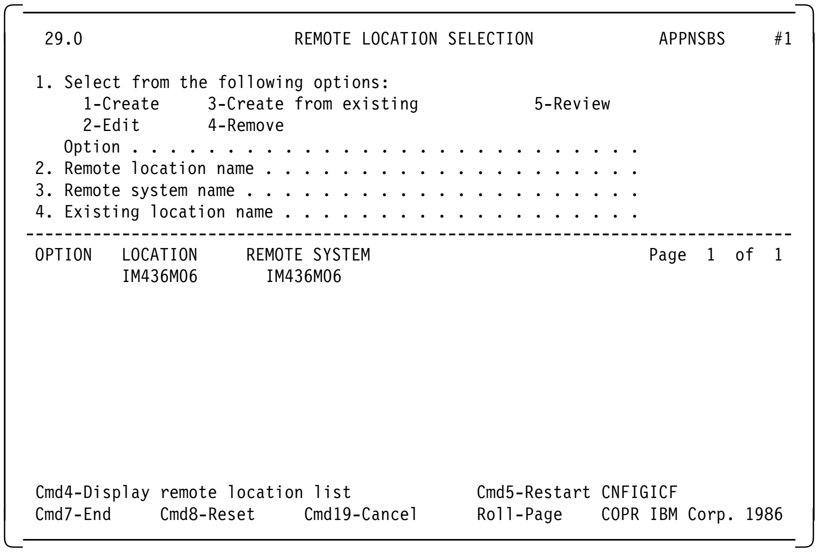




Cmd4-Display remote location list            Cmd5-Restart CNFIGICF
Cmd7-End     Cmd8-Reset     Cmd19-Cancel     Roll-Page    COPR IBM Corp. 1986
```

Press Enter.

7. The following display appears after the remote location IM436M06 has been created successfully.



```
 29.0                      REMOTE LOCATION SELECTION            APPNSBS     #1

1. Select from the following options:
    1-Create     3-Create from existing           5-Review
    2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . .
2. Remote location name . . . . . . . . . . . . . . . . . . . .
3. Remote system name . . . . . . . . . . . . . . . . . . . . .
4. Existing location name . . . . . . . . . . . . . . . . . . .
-------------------------------------------------------------------------------
OPTION   LOCATION     REMOTE SYSTEM                             Page  1  of  1
         IM436M06       IM436M06





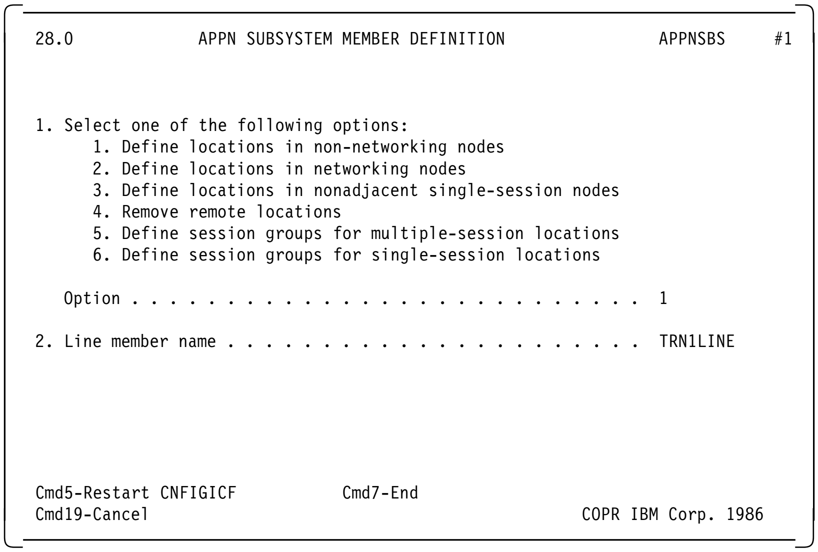





Cmd4-Display remote location list             Cmd5-Restart CNFIGICF
Cmd7-End     Cmd8-Reset     Cmd19-Cancel      Roll-Page    COPR IBM Corp. 1986
```

Press Cmd 7.

8. Back on display 28.0, select option 1 to define the PC link. The PC, P7089171, is a non-networking node. When the prompt for the line member appears, type TRN1LINE and press Enter.



```
28.0             APPN SUBSYSTEM MEMBER DEFINITION               APPNSBS     #1



1. Select one of the following options:
      1. Define locations in non-networking nodes
      2. Define locations in networking nodes
      3. Define locations in nonadjacent single-session nodes
      4. Remove remote locations
      5. Define session groups for multiple-session locations
      6. Define session groups for single-session locations

   Option . . . . . . . . . . . . . . . . . . . . . . . . . . .  1

2. Line member name . . . . . . . . . . . . . . . . . . . . . .  TRN1LINE

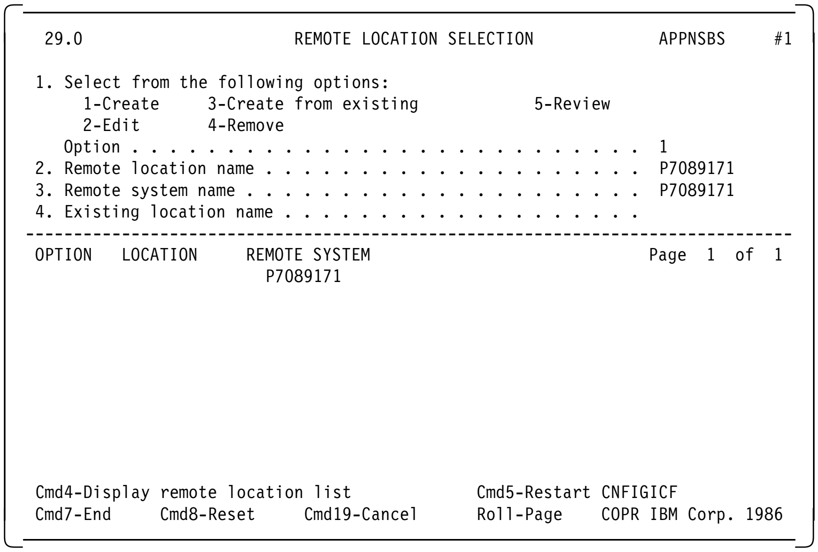





Cmd5-Restart CNFIGICF           Cmd7-End
Cmd19-Cancel                                              COPR IBM Corp. 1986
```

Press Enter.

9. On display 29.0, use option 1 to define a remote location P7089171 linked to the remote system P7089171 that we defined in the line member TRN1LINE.



```
 29.0                      REMOTE LOCATION SELECTION            APPNSBS     #1

1. Select from the following options:
     1-Create     3-Create from existing           5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . .  1
2. Remote location name . . . . . . . . . . . . . . . . . . . .  P7089171
3. Remote system name . . . . . . . . . . . . . . . . . . . . .  P7089171
4. Existing location name . . . . . . . . . . . . . . . . . . .
-------------------------------------------------------------------------------
OPTION   LOCATION     REMOTE SYSTEM                             Page  1  of  1
                        P7089171







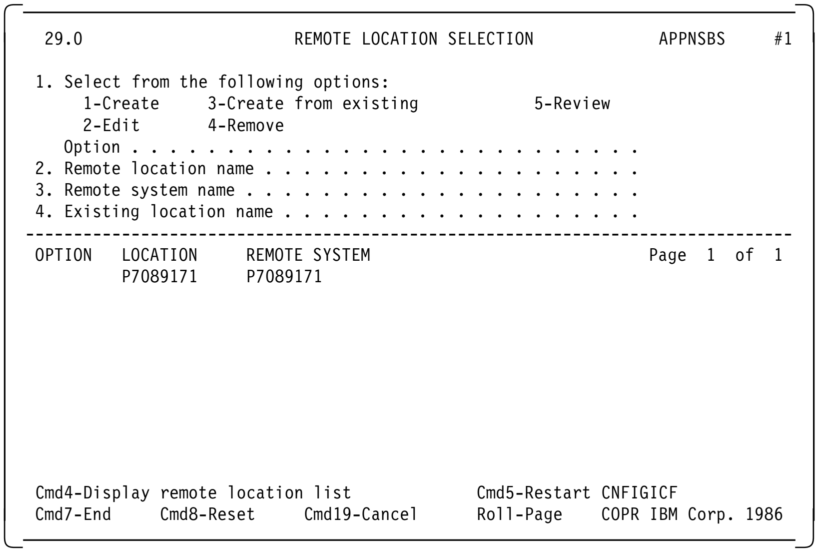




Cmd4-Display remote location list            Cmd5-Restart CNFIGICF
Cmd7-End     Cmd8-Reset     Cmd19-Cancel      Roll-Page    COPR IBM Corp. 1986
```

Press Enter.

10. The following display is shown after the remote location IM436M06 has been created successfully.



```
 29.0                      REMOTE LOCATION SELECTION            APPNSBS     #1

1. Select from the following options:
     1-Create     3-Create from existing           5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . .
2. Remote location name . . . . . . . . . . . . . . . . . . . .
3. Remote system name . . . . . . . . . . . . . . . . . . . . .
4. Existing location name . . . . . . . . . . . . . . . . . . .
-------------------------------------------------------------------------------
OPTION   LOCATION     REMOTE SYSTEM                             Page  1  of  1
         P7089171     P7089171







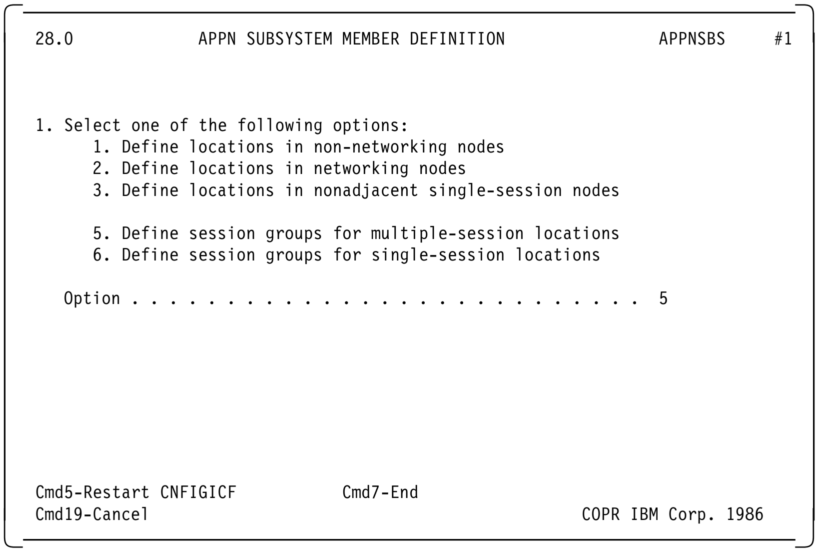




Cmd4-Display remote location list            Cmd5-Restart CNFIGICF
Cmd7-End     Cmd8-Reset     Cmd19-Cancel      Roll-Page    COPR IBM Corp. 1986
```

Press Cmd 7.

11. Next, create a session group with the name QPCSUPP. Select option 5.



```
28.0             APPN SUBSYSTEM MEMBER DEFINITION                APPNSBS     #1



1. Select one of the following options:
      1. Define locations in non-networking nodes
      2. Define locations in networking nodes
      3. Define locations in nonadjacent single-session nodes

      5. Define session groups for multiple-session locations
      6. Define session groups for single-session locations

   Option . . . . . . . . . . . . . . . . . . . . . . . . . . .  5



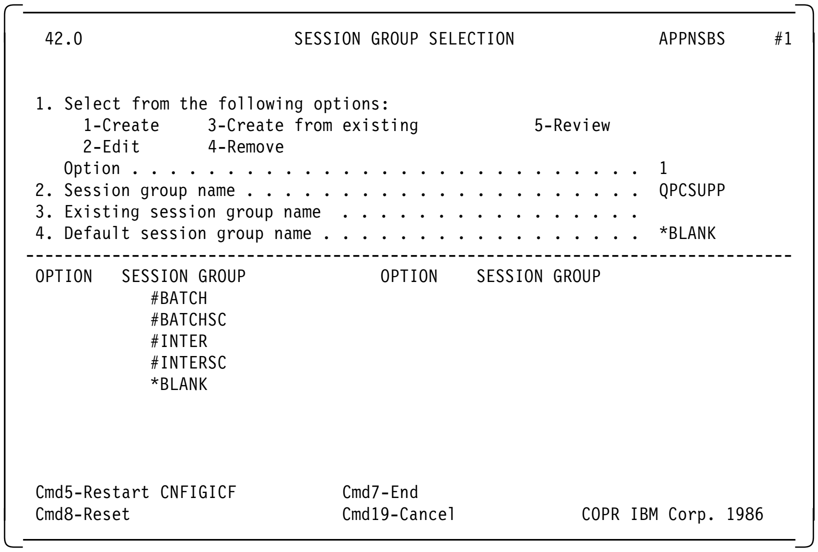




Cmd5-Restart CNFIGICF           Cmd7-End
Cmd19-Cancel                                             COPR IBM Corp. 1986
```

Press Enter.

12. Use option 1 to create a new session group called QPCSUPP.



```
 42.0                      SESSION GROUP SELECTION               APPNSBS     #1


1. Select from the following options:
     1-Create     3-Create from existing           5-Review
     2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . .  1
2. Session group name . . . . . . . . . . . . . . . . . . . . .  QPCSUPP
3. Existing session group name  . . . . . . . . . . . . . . . .
4. Default session group name . . . . . . . . . . . . . . . . .  *BLANK
-------------------------------------------------------------------------------
OPTION   SESSION GROUP              OPTION    SESSION GROUP
            #BATCH
            #BATCHSC
            #INTER
            #INTERSC
            *BLANK




Cmd5-Restart CNFIGICF           Cmd7-End
Cmd8-Reset                      Cmd19-Cancel             COPR IBM Corp. 1986
```

Press Enter.

13. When the new session group has been successfully created, the following display is shown.

```
 42.0                    SESSION GROUP SELECTION              APPNSBS     #1


 1. Select from the following options:
      1-Create     3-Create from existing            5-Review
      2-Edit       4-Remove
   Option . . . . . . . . . . . . . . . . . . . . . . . . . . .
 2. Session group name . . . . . . . . . . . . . . . . . . . . .
 3. Existing session group name  . . . . . . . . . . . . . . . .
 4. Default session group name . . . . . . . . . . . . . . . . .  *BLANK
-------------------------------------------------------------------------------
 OPTION   SESSION GROUP              OPTION    SESSION GROUP
             #BATCH
             #BATCHSC
             #INTER
             #INTERSC
             *BLANK
             QPCSUPP



 Cmd5-Restart CNFIGICF           Cmd7-End
 Cmd8-Reset                      Cmd19-Cancel             COPR IBM Corp. 1986
```

This completes the setup for the APPN subsystem. Press Cmd 7 three times to exit CNFIGICF.

13.9 Communications Manager/2 Configuration

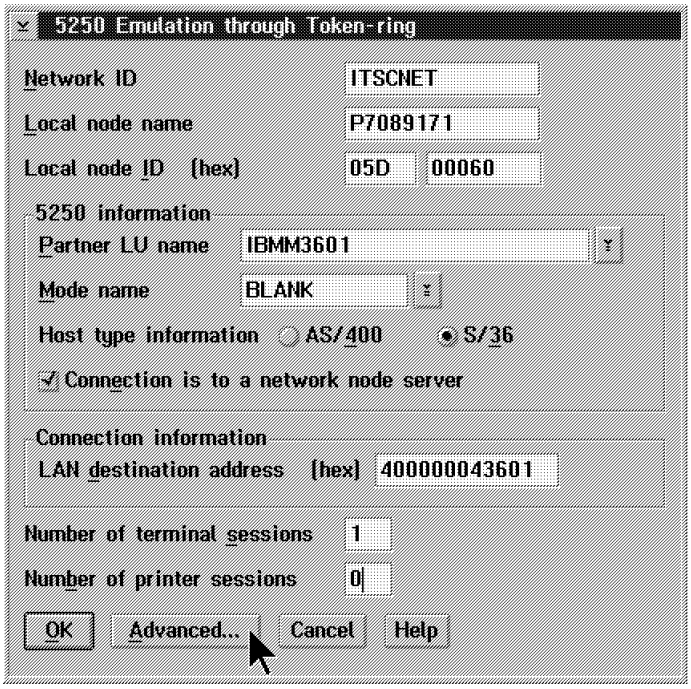
Use the following configuration steps to link the PC to IM436M06 and SSP machine.

1. Click on the Communications Manager Setup icon.
2. Click on the Setup button.
3. Type the name of your configuration and click on the OK button.
4. Click on the Yes button when you see messages asking you if you want to create the configuration and if the configuration file will be used for your workstation.
5. Select the option, 5250 Emulation through Token-ring as the Communications Definitions value. Click on the Configure button.
6. Use the information in Table 19 for the subsequent prompts.

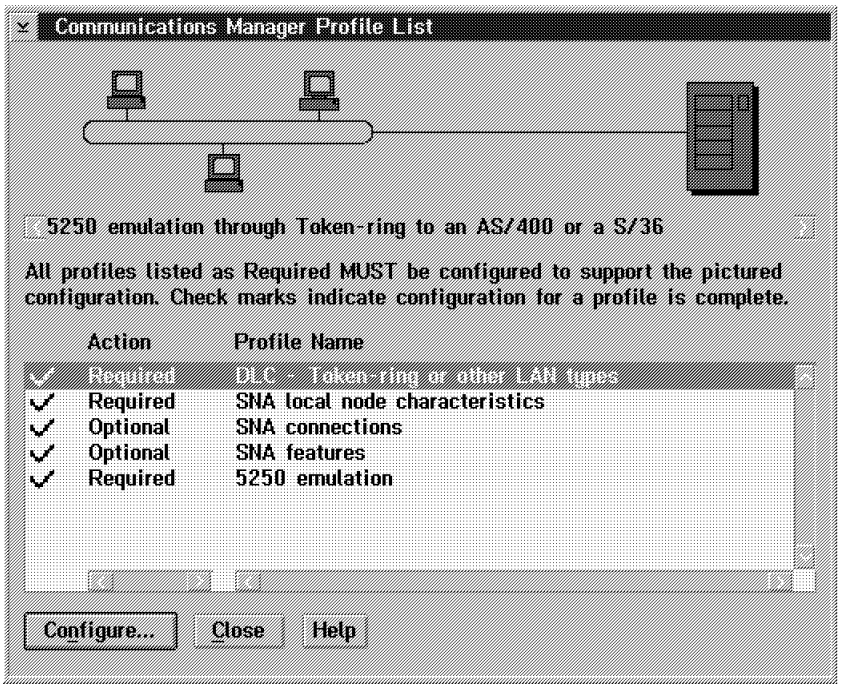
Table 19. 5250 Emulation through Token-ring Parameters

Parameter	Value
Network ID	ITSCNET
Local node name	P7089171
Local node id (hex)	05D 00060
Partner LU name	IBMM3601
Mode name	BLANK
Host type information	S/36
Connection is to a network node.	Yes
LAN destination address (hex)	400000000001

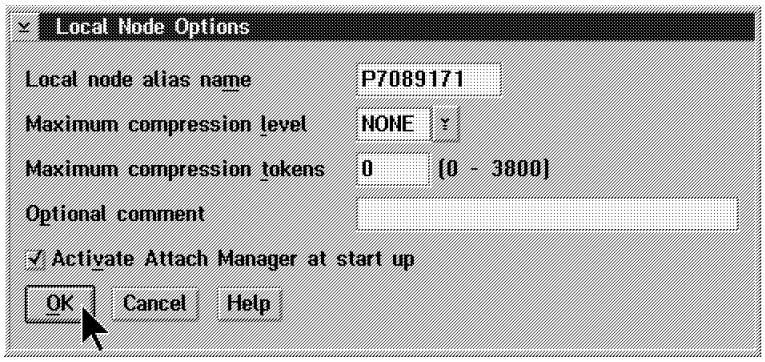
7. Fill in the parameter values as shown for the 5250 Emulation through Token-ring window:



8. Click on the Advanced button.
9. On the Communication Manager Profile List window, double-click on the SNA local node characteristics option.



10. On the Local Node Characteristics window, click on the Options button.
11. On the Local Node Options window, change the Local node alias name from 5250LU to P7089171. Click on the OK button. Back on the Local Node Characteristics window, click on the OK button.

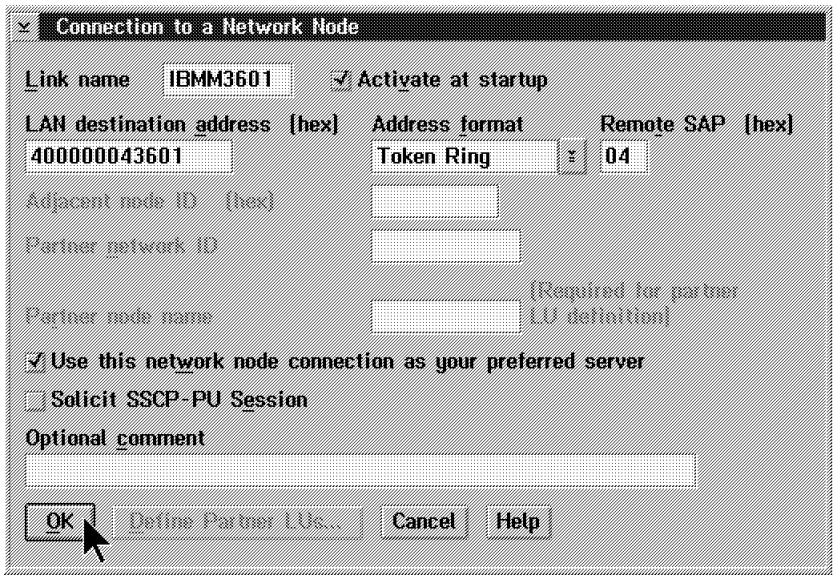


12. On the Communication Manager Profile List window, double-click on the SNA Connections option.
13. On the Connections List window, make sure that the Partner type is To Network node. Double-click LINK001.
14. On the Adapter List display, double-click on Token-ring or other LAN types.
15. Use the information in Table 20 for the subsequent prompts.

Table 20. Connection to Network Node Parameters

Parameter	Value
Link Name	IBMM3601
Activate at startup	YES

16. On the Connection to a Network Node display, fill in the parameter values as shown:

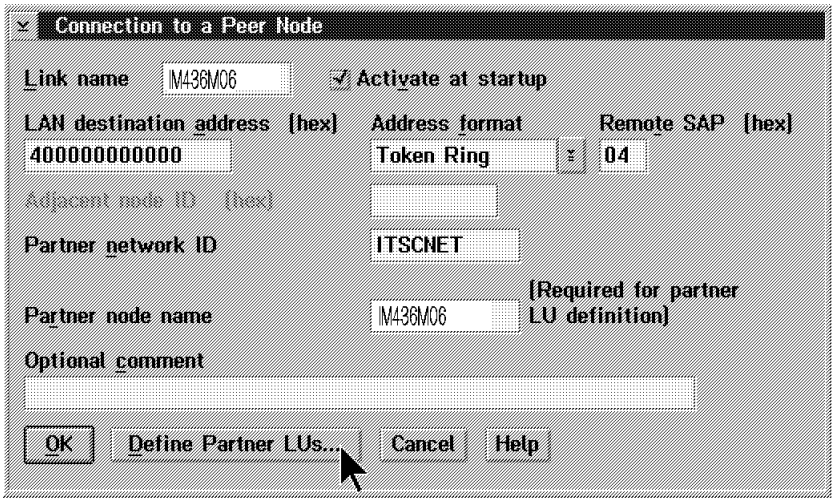


17. Click on the OK button.
18. Back on the Connections List window, change the Partner Type to "To Peer Node". Click on the Create button.
19. Leave the Adapter Type on the Adapter List window as token-ring or other LAN types. Click on the Continue button.

    Use the information in Table 19 for the subsequent prompts.

Table 21. Connection to Peer Node Parameters	
Parameter	**Value**
Link Name	IM436M06
Activate at startup	YES
LAN destination address	400000000000
Address format	Token-Ring
Remote SAP	04
Partner network ID	ITSCNET
Partner node name	IM436M06

20. Fill in the parameters on the Connection to a Peer Node window as follows:

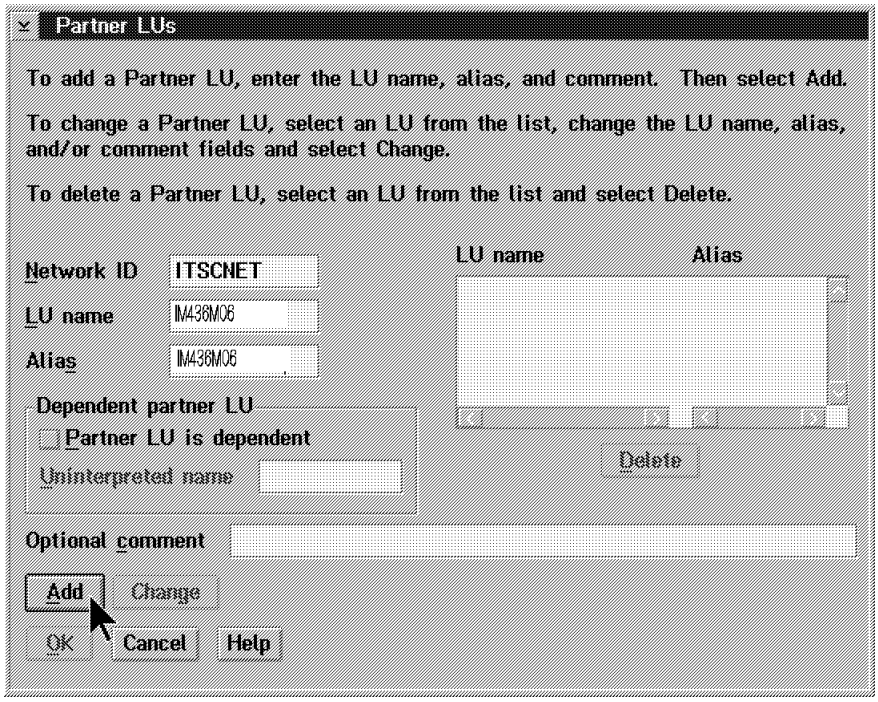


21. Click on the Define Partner LUs button.

    Use the information in Table 20 for the subsequent prompts.

Table 22. Partner LUs parameters	
Parameter	**Value**
Network ID	ITSCNET
LU name	IM436M06
Alias	IM436M06

22. On the Partner LUs window, fill in the parameters as follows:



23. Click on the Add button, then the OK button followed by the OK button on the Connection to a Peer Node window. Back on the Connections List window, click on the close button.

24. On the Communications Manager Profile List window, double-click on the SNA features option.

25. On the SNA Features List window, click on the Partner LUs option under Features. Double-click on the 5250PLU definition.

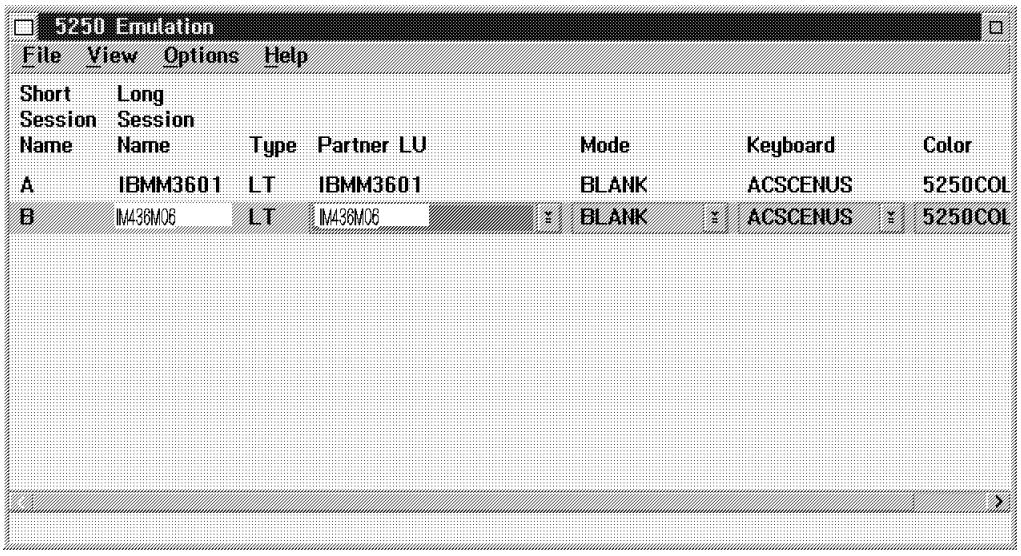
    Use the information in Table 20 for the subsequent prompts.

Table 23. Partner LU Parameters

Parameter	Value
Fully qualified LU name	ITSCNET.IBMM3601
Alias	IBMM3601

26. On the Partner LU display, fill in the parameter values as shown:

27. Click on the OK button.
28. Back on the SNA Features List display, click on the Close button.
29. On the Communications Manager Profile List window, double-click the 5250 emulation option.
30. Double-click the letter A under the Long Session Name column. On the 5250 Logical Terminal - window, click on the Save As button. On the Save As window, change the Long Session name to IBMM3601. Click on the OK button.
31. Change IBMM3601's partner LU from 5250PLU to IBMM3601 using the list box.
32. Back at the 5250 Emulation display, click on File on the menu bar and choose New to create a new emulation session. The session type should be a logical terminal. Click on the OK button on the Session Type window. Click on the Save as button and on the Save As window, fill in the Long Session Name as IM436M06. Click on the OK button.
33. On the 5250 emulation window, click on the Partner LU column for the Long Session Name IM436M06. Select IM436M06 as the Partner LU from the list box. Close the 5250 Emulation window.



34. Close the Communications Manager Profile List window.
35. Close the Communications Manager Configuration Definition window.
36. Click on the OK button on the Communications Manager Completion window.
37. Close the Communications Manager Setup window.

This completes the configuration tasks for communicating with IM436M06 and IBMM3601.

13.10 Operation

Vary on the APPC controller QILANM3601 and devices P7089171 and IBMM3601 in OS/400. Use the WRKCFGSTS command to check on the status of the link. If the links have been started successfully after the SSP machine subsystem and Communications Manager/2 on the PC have also been started up, the WRKCFGSTS display should look similar to this:

```
                        Work with Configuration Status                IM436M06
                                                            08/15/95  17:20:00
 Position to  . . . . .               Starting characters

 Type options, press Enter.
   1=Vary on   2=Vary off   5=Work with job   8=Work with description
   9=Display mode status ...

 Opt  Description       Status                ----------Job----------
      QM36ILAN          ACTIVE
        IBMM3601        ACTIVE
        P7089171        ACTIVE




                                                                     Bottom
 Parameters or command
 ===>
 F3=Exit   F4=Prompt   F12=Cancel   F23=More options   F24=More keys
```

You need to run the ENABLE procedure twice for the APPN subsystem; once for the links to IM436M06 through the internal LAN and once for the PC through the (external) token-ring network.

The following display shows the parameters for the ENABLE procedure for the internal LAN, ILANLINE.

```
                              ENABLE PROCEDURE                  Optional-*

                  Enables an Interactive Communications Feature,
                  MSRJE, or 3270 device emulation subsystem


  Subsystem configuration name  . . . . . . . . . . . . . . . . . .  APPNSBS

  Name of library . . . . . . . . . . . . . . . . . . . . . . . . .  #CNFGLIB

  Line number . . . . . . . . . . . . . . . . . . . . . . .  1-10  15         *

  Display values in effect
    for this subsystem  . . . . . . . . . . . . . . . . NOSHOW,SHOW  NOSHOW

  Remote location name  . . . . . . . . . . . . . . . . . . . . . .            *

  Line member name  . . . . . . . . . . . . . . . . . . . . . . . .  ILANLINE   *




  Cmd3-Previous menu    Cmd4-Put on job queue                COPR IBM Corp. 1986
```

The following display shows the parameters for the ENABLE procedure for the external LAN - TRN1LINE.

```
                              ENABLE PROCEDURE                  Optional-*

                  Enables an Interactive Communications Feature,
                  MSRJE, or 3270 device emulation subsystem


  Subsystem configuration name  . . . . . . . . . . . . . . . . . .  APPNSBS

  Name of library . . . . . . . . . . . . . . . . . . . . . . . . .  #CNFGLIB

  Line number . . . . . . . . . . . . . . . . . . . . . . .  1-10  10         *

  Display values in effect
    for this subsystem  . . . . . . . . . . . . . . . . NOSHOW,SHOW  NOSHOW

  Remote location name  . . . . . . . . . . . . . . . . . . . . . .            *

  Line member name  . . . . . . . . . . . . . . . . . . . . . . . .  TRN1LINE   *




  Cmd3-Previous menu    Cmd4-Put on job queue                COPR IBM Corp. 1986
```

To check the status of the subsystem, run D I on the command line.

```
 Complete                        SUBSYSTEM STATUS                              #3

CONFIG   CONFIG    LINE  LOCATION   STATUS       COMMUNI-   --NO. OF SESSIONS--
NAME     TYPE            NAME                    CATING     EVOKED     ACQUIRED
APPNSBS  APPN       15   IM436M06  Enabled          Y        ---          ---
                    10   P7089171  Enabled          Y        001          ---




  Cmd7-End      Cmd8-Help     Cmd15-Update      Cmd16-Restart      Roll-Page
--------------------------------------------------------------------------------
                                     CNTLLINE
                         Start or stop communication lines
    1. Start a subsystem
    2. Stop a subsystem                 6. Control APPC
    3. Start monitoring a BSC line      7. Control alert support
    4. Stop monitoring a BSC line

 Ready for option number or command


                                                          COPR IBM Corp. 1985
```

The subsystem should be at a Status of Enabled and should show Communicating-Y.

On the PC, start Communications Manager/2. When prompted for an OS/400 USERID, sign on with one that is enrolled in the OS/400 system directory. When prompted for an SSP USERID, do not type anything in that window. Just press Enter. This allows you to assume the *NULL USERID which you have already set up.

After Communications Manager/2 has been successfully started, you may start Client Access/400. When prompted for USERIDs, sign on as you did when you started Communications Manager/2.

13.11 Matching Parameters

1. OS/400 - SSP (ILAN)

```
OS/400                                          M36
------                                          ---
 CRTCTLAPPC                                      CNFIGICF
┌─CTLD(QILANM3601)                                4.0 SNA/TRN Line member
│ LINKTYPE(*ILAN)                                            ILANLINE──────────┐
│ RMTNETID(*NETATR)                                                            │
│ RMTCPNAME(IBMM3601) ──────► 1                   12.0 SNA Line                │
│ EXCHID(03E00001) ──────► 2                  2 ◄──── 6.  XID Local in hex 00001
│ LAN DSAP(08) ──────► 3                      3 ◄──── 7.  SSAP value       08  │
│ LAN SSAP(04) ──────► 4                                                       │
│ APPN(*YES)                                       2.5 Remote System           │
│ NODETYPE(*NETNODE)                          8 ◄──── 2.  Name          IM436M06──┐
│                                                                              │ │
│ CRTDEVAPPC                                      13.0 Remote System Attribute │ │
│ DEVD(IBMM3601)                                   3.  Block ID in hex   056   │ │
│ RMTLOCNAME(IBMM3601) ──────► 1                   4.  XID remote in hex 00000 │ │
│ LCLLOCNAME(IM436M06) ──────► 5                                               │ │
└─CTL(QILANM3601)                                 13.5 Remote System           │ │
  MODE(BLANK) ú†──────► 6                         1.  Adapt. Addr. 400000000000 │ │
                                            4 ◄──── 2.  DSAP value   04        │ │
 CHGNETA                                                                      │ │
  LCLNETID(ITSCNET) ──────► 7                                                 │ │
  LCLCPNAME(IM436M06) ──────► 8                 21.0 SNA Subsystem  APPNSBS   │ │
                                                  1.  Subsystem type APPN     │ │
                                                                              │ │
PC                                                22.0 Subsystem Member Definition │
--                                                 1.  Local location name    │ │
 COMMUNICATIONS MANAGER/2                   1 ◄──────────────────────── IBMM3601 │
  LOCAL NODE NAME :                         7 ◄──── 5.  Network ID      ITSCNET │
                P7089171 ──────► 9                                            │ │
  LOCAL NODE ALIAS NAME :                         28.0 APPN Subsystem Member  │ │
                P7089171 ──────► 10                     Definition            │ │
  LOCAL NODE ID :                                  1.  Networking Nodes       │ │
               05D 00060                           2.  Line member name ILANLINE──┘
                                                                              │
  LINK NAME : IBMM3601                            29.0 Remote Location Selection │
  NODE TYPE : NETWORK NODE                  5 ◄──── 2.  Remote loc. name IM436M06 │
  FULLY QUALIFIED LU NAME :                             Remote sys. name IM436M06──┐
        ITSCNET.IBMM3601 ──────► 7,1                                          │ │
  PARTNER LU ALIAS :                               2.  Remote loc. name P7089171 │
                IBMM3601 ──────► 11                    Remote sys. name IM436M06──┘
  LAN DESTINATION ADDRESS :                                                   │
            400000043601                          28.0 Session groups multiple │
                                                                sessions      │
  LINK NAME : IM436M06                      6 ◄──── 2.  Session Group *BLANK  │
  NODE TYPE : PEER NODE                            2.  SESSION GROUP QPCSUPP  │
  FULLY QUALIFIED LU NAME                                                     │
        ITSCNET.IM436M06 ──────► 7,8                                          │
  PARTNER LU ALIAS :                                                          │
                IM436M06 ──────► 12                                           │
  LAN DESTINATION ADDRESS :                                                   │
            400000000000                                                      │


 CONFIG.PCS
   RTYP CMGR
   LCLN P7089171 ──────► 10
   RMTN IBMM3601 ──────► 11
   RMTN IM436M06 ──────► 12
```

2. PC - SSP (TRN1LINE)

```
PC                                          M36
--                                          ---
 COMMUNICATIONS MANAGER/2                    SETCOMM
  LOCAL NODE NAME :                           LINE 10
                P7089171 ──────► 1      8 ◄──── TRN Address 400000043601
  LOCAL NODE ALIAS NAME :
                P7089171 ──────► 2            CNFIGICF
  LOCAL NODE ID :                             4.0 SNA/TRN Line member
              05D 00060 ──────► 3,4                              TRN1LINE

  LINK NAME : IBMM3601                        12.0 SNA Line
  NODE TYPE : NETWORK NODE                    6.  XID Local in hex 00001
  FULLY QUALIFIED LU NAME :                   7.  SSAP value       04
        ITSCNET.IBMM3601 ──────► 5,6
  PARTNER LU ALIAS :                         12.5 Remote System
                IBMM3601 ──────► 7            2.  Name          P7089171 ────┐
  NETWORK NODE ADDRESS :                                                     │
           400000043601 ──────► 8           13.0 Remote System Attribute    │
                                         3 ◄──── 3.  Block ID in hex   05D   │
  LINK NAME : IM436M06                   4 ◄──── 4.  XID remote in hex 00060 │
  NODE TYPE : PEER NODE                                                      │
  FULLY QUALIFIED LU NAME                    13.5 Remote System              │
        ITSCNET.IM436M06 ──────► 5,9    11 ◄──── 1.  Adapt. Addr. 400030000241 │
  PARTNER LU ALIAS :                            2.  DSAP value   04          │
                IM436M06 ──────► 10                                          │
  NETWORK NODE ADDRESS :                     21.0 SNA Subsystem   APPNSBS    │
           400000000000                         1.  Subsystem type  APPN    │
                                                                             │
                                                                             │
 CONFIG.PCS                                                                  │
   RTYP CMGR                                 22.0 Subsystem Member Definition │
   LCLN P7089171 ──────────────► 2              1.  Local location name      │
   RMTN IBMM3601 ──────────────► 7       6 ◄──────────────────────── IBMM3601 │
   RMTN IM436M06 ──────────────► 10      5 ◄──── 5.  Network ID      ITSCNET │
                                                                             │
                                             28.0 APPN Subsystem Member      │
 PROTOCOL.INI                                          Definition            │
   (LANDD_nif)                                  1.  Non-networking nodes     │
      NETADDRESS =                              2.  Line member name TRN1LINE │
           "400030000241" ──────► 11                                         │
                                             29.0 Remote Location Selection  │
                                          1 ◄──── 2.  Remote loc. name P7089171 │
                                                      Remote sys. name P7089171 ┘

                                             28.0 Session groups multiple
                                                                  sessions
                                              2.  Session Group *BLANK
                                              2.  Session Group QPCSUPP
```

Part 5. Data Access on AS/400 Advanced 36

The ″data access″ capabilities between an SSP machine and OS/400 on the same AS/400 Advanced 36 are described in this part in the following chapters:

- Chapter 14, “SSP File System and DB/2 for OS/400” on page 271
- Chapter 15, “Display Station Pass-Through” on page 273
- Chapter 16, “Distributed Data Management” on page 279
- Chapter 17, “Object Distribution Facility” on page 287

Chapter 14. SSP File System and DB/2 for OS/400

On the AS/400 Advanced 36 Model 436, you have two kinds of file systems: SSP disk files and OS/400 DB/2 database files.

14.1 The SSP File System

On an SSP M36 machine, all SSP files contain fixed length byte-oriented string data. The files usually have no external description associated with them nor with the data. (System/36 does optionally provide Interactive Data Definition Utility (IDDU) support which can be used to describe the data fields.)

The file field definition is normally described in each program that uses the file. Each program may contain a different description of the same file. For example: Program A can have a numeric definition of a field and Program B can have an alphanumeric definition of the same field in the file.

Therefore, a problem area when you convert your SSP applications to Operating System/400 can be decimal data errors. This is because numeric fields were allowed to contain alphanumeric data on the SSP file system. DB/2 for OS/400 does not support this. Keep this in mind when you load SSP data onto an OS/400 or use Distributed Data Management. Refer to Chapter 16, “Distributed Data Management” on page 279 for more information.

To resolve this problem, many SSP customers use COPY members (where they have the File Field Definition) and some use Interactive Data Definition Utility (IDDU).

However, there may be situations where you either have to change the contents of an SSP numeric data field or understand and use the ″decimal data″ parameters of the OS/400 High Level Languages (HLL).

For example, under SSP M36 machine operation (and OS/400 System/36 Environment) invalid zoned decimal numbers are processed exactly as they are on the heritage System/36 systems.

However, if an SSP program uses a field with invalid decimal data as a database record key, a ″record not found″ condition may occur.

If an SSP RPG program is migrated to OS/400 RPG, the programmer must become familiar with the OS/400 Original Program Model RPGIII and Integrated Language Environment (ILE) RPGIV compiler ways to handle invalid zoned decimal data. RPGIII provides the IGNDECERR parameter which merely ignores any invalid data and the program continues at the risk of processing invalid data. RPGIV provides the FIXNBR parameter.

If FIXNBR(*NONE) is selected, the zoned decimal data is not fixed by the compiler on the conversion to packed data and results in decimal errors during runtime if used.

If FIXNBR(*ZONED) is selected, zoned decimal data that is not valid is fixed by the compiler on the conversion to packed data. Blanks in numeric fields are treated as zeros. Each decimal digit is checked for validity. If a decimal digit is not valid, it is replaced with zero. If a sign is not valid, the sign is forced to a positive sign code of hex ′F′. If the sign is valid, it is changed to either a positive sign hex ′F′ or a negative sign hex ′D′ as appropriate.

14.2 The Integrated Relational Database DB2 for OS/400

The OS/400 relational database includes the same function as the SSP file system but offers much more. DB/2 for OS/400 has it own Data Definition Languages to describe files (SQL tables), records (SQL rows), fields (SQL columns), attributes, and functions associated with the file or the data in the file. The Data Definition Languages are Data Definition Specifications (DDS) and SQL (Structured Query Language). File parameters can be changed using OS/400 commands or Control Language programs.

While OS/400 HLL programs can process the database files as ″program described″ (similar to SSP HLL programs), there are many more benefits when fully utilizing this ″external data definition″ support.

Benefits for the Programmer are:

- External file descriptions simplify coding of high-level language programs - using the same field names in all applications
- Logical file descriptions for different views or parts of the file - subsetting fields from the physical database record
- Join logical files to merge data - retrieving records composed of fields of multiple physical database files
- Journaling for restart and recovery - recording before and after images of records being changed
- Referential integrity functions - ensuring a record is not deleted if other files are dependent on data in that record (for example, do not delete a customer master record if there are outstanding accounts payable records for that customer)
- Two-phase commit - update or roll back related records actually stored on multiple systems.
- SQL, DFU, Query, and PC tools such as ShowCase VISTA are available to access the database.

As the sophistication of your data processing needs increases, you can move your SSP data to the OS/400 database constructs when you want to.

For more details about AS/400 database, refer to *Inside the AS/400*, SR28-5910, by Frank G. Soltis.

For a description about DB/2 for OS/400 functions, refer to *DB2/400*, S246-0100, by Skip Marchesani.

Chapter 15. Display Station Pass-Through

Both SSP and OS/400 have supported Display Station Pass-Through between each other for several years. In most cases, passing through on the same Model 436 works the same. This chapter summarizes pass-through on the same Model 436 and highlights some ″usage″ considerations in case the reader has never used Display Station Pass-Through before.

Recall the system where pass-through is initiated is called the *source system* and the system you are passing through to is called the *target system*.

After you have configured the ILAN (refer to 4.3.3, “Create ILAN APPC Controller Definition for OS/400” on page 88) and connected your machines (refer to 4.4, “How to Start and Maintain Internal Local Area Network” on page 107), you can use the ILAN to pass through to the SSP machine or OS/400 machines, depending on the configuration setup of the display device you work from.

The following examples assume the ILAN has been configured following the examples in Chapter 4, “Internal Local Area Network” on page 75 and that the systems are communicating.

Read This!

Note: If security is active on your system, be sure you have a valid user profile and password on the source and target systems before you use the examples in this redbook.

15.1 OS/400 Pass-Through to an SSP Machine

Start Display Station Pass-Through: Sign on to the OS/400 machine.

```
MAIN                          AS/400 Main Menu
                                                          System:   IM436M06
Select one of the following:

     1. User tasks
     2. Office tasks
     3. General system tasks
     4. Files, libraries, and folders
     5. Programming
     6. Communications
     7. Define or change the system
     8. Problem handling
     9. Display a menu
    10. Information Assistant options
    11. Client Access/400 tasks

    90. Sign off

Selection or command
===> strpasthr IBMM3601_____________________________________

F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel   F13=Information Assistant
F23=Set initial menu
```

Do the following.

Refer to Table 3 on page 76 for the SSP machine system names for values **2** or **3** or **4**.

1. Type STRPASTHR **2** or **3** or **4**.

2. Press Enter.

Note: For a short time, you see the ″Display Station Initialization″ display. The OS/400 STRPASTHR command has the PASTHRSCN parameter that defaults to showing the ″initialization display.″ You may specify PASTHRSCN(*NO) to eliminate the initialization display.

The SSP sign on display is shown.

```
                                   SIGN ON                 Optional-*    #3

              User ID  . . . . . . . . . . . . . . .   _______

              Password . . . . . . . . . . . . . . .   ___

              User menu  . . . . . . . . . . . . . .   _____          *

              Library  . . . . . . . . . . . . . . .   _______        *

              Procedure  . . . . . . . . . . . . . .   _______        *


   Help-Assistance for sign on                                 PASSTHRU

   5716-SSP (C) COPYRIGHT IBM CORP. 1983, 1995.  LICENSED MATERIALS - PROPERTY OF
   IBM. ALL RIGHTS RESERVED.
```

Note: There is no way to go back to the OS/400 machine from the Signon display except by signing off (OFF) from the SSP system. You must, therefore, sign on to the SSP machine and sign off to return to OS/400.

If you receive the APPC failure **Failure code X**′0009000000000000′, check to see if the APPC controller is not ACTIVE or the mode that was selected in the STRPASTHR command. The mode that is used should be BLANK, although you can create additional APPC modes/session groups to be used between SSPs and OS/400.

Try the pass-through request again specifying the mode of BLANK:

```
STRPASTHR RMTLOCNAME(IBMM3603) MODE(BLANK)
```

Stop Pass-Through: Type the following command and press Enter:

```
OFF
```

15.2 SSP Passthru

Start Pass-Through: Do the following:

1. Sign on to the SSP machine.
2. Type PASSTHRU **1** or **2** or **3** or **4** depending on the system you want to pass through to. The OS/400 or SSP Signon display is shown, depending on the system you selected in step 2. Refer to Table 3 on page 76.

Stop Pass-Through: Type the following command and press Enter:

```
OFF if you are on an SSP machine
```

or

```
ENDPASTHR if you are on an OS/400 machine.
```

When ending pass-through, care should be taken in planning what operating system you want your display session to ″return to.″

When ending a pass-through session on OS/400 (currently signed on to OS/400), you may issue either the ENDPASTHR command or the SIGNOFF command. ENDPASTHR returns the display session to the session and system where the pass-through was initiated - the source system. However, the SIGNOFF command provides two options for what happens to the current display device session after signing off.

OS/400 Signoff defaults to returning to the **OS/400 Signon display for the system you are already passed-through to - the target system**. In many cases, you want to return to the system where pass-through was started from - the *source system*. To do this you must specify SIGNOFF ENDCNN(*YES).

When ending a pass-through session on SSP (currently signed on to the SSP), you may issue the OFF command. OFF defaults to ″DROP,″ which returns the display session to the session and system where pass-through was initiated from - the source system. SSP OFF DROP is equivalent to OS/400 SIGNOFF ENDCNN(*YES) or ENDPASTHR. SSP OFF HOLD is equivalent to OS/400 SIGNOFF ENDCNN(*NO).

15.3 Pass-Through Considerations

Keep the following considerations in mind when using Display Station Pass-Through.

15.3.1.1 Display Station Pass-Through from Display Station Pass-Through

OS/400 supports starting another pass-through session from an OS/400 you have already passed through to.

SSP does **not** support starting another pass-through session from an SSP you have already passed through to.

Use Figure 52 on page 276 as a sample OS/400 and SSP configuration for the Display Station Pass-Through examples and expected results that follow.

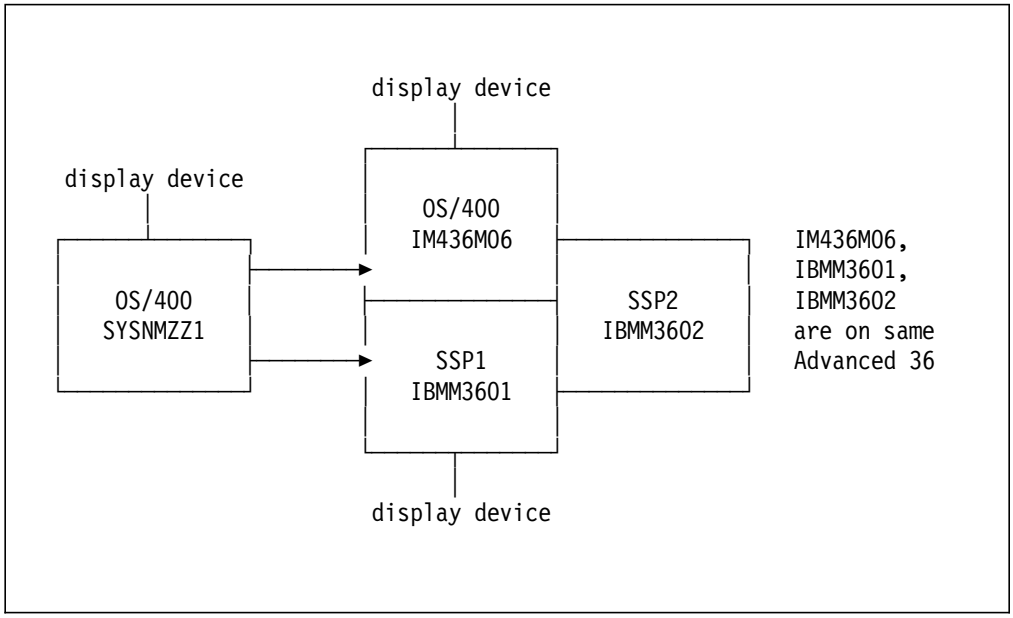


Figure 52. Display Station Pass-Through Example Configuration

Example 1: Your display station is physically connected to OS/400, local control point/location name IM436M06 and you have already passed-through to SSP machine SSP1, local location IBMM3601. If you then try to PASSTHRU from IBMM3601 to IBMM3602 (SSP machine SSP2), you receive error message SYS-4708 on the source (IBMM3601) SSP machine:

```
SYS-4708 = PASSTHRU is not allowed from a display station
pass-through session
```

Example 2: Your display station is **assigned** to the SSP machine SSP1, local location IBMM3601 and you have already passed through to OS/400 control point name IM436M06. If you try to pass-through *from* IM436M06 to either another SSP or OS/400, you fail with error message CPF-8905 on OS/400:

```
CPF8905 = Pass-through not allowed on this system
```

This is because SSP (the original source system) does not support the function required to do repetitive pass-through sessions.

Example 3: Your display station is physically connected to a remote OS/400 machine, local contol point/location name SYSNMZZ1, in this example. From SYSNMZZ1, you have passed through to the SSP machine SSP1, local location name IBMM3601. If you try to pass-through *from* IBMM3601 to another OS/400 or SSP, you receive error message SYS-4708 on the requesting (IBMM3601) SSP machine:

```
SYS-4708 = PASSTHRU is not allowed from a display station
pass-through session
```

Example 4: Your display station is physically connected to a remote OS/400 machine, local control point/location name SYSNMZZ1, in this example. From SYSNMZZ1, you have passed through to OS/400, local control point/location name IM436M06. If you try to pass-through *from* IM436M06 to another system, such as SSP machine IBMM3601, **pass-through to IBMM3601 works successfully.**

Note: This works because beginning with V3R0M5, OS/400 was enhanced to provide support for multiple Start Display Pass-Through sequences - **when OS/400 is both the source and intermediate system doing the pass-through function.**

15.3.1.2 Automatic Signon When Using Display Station Pass-Through

You can set up your Display Station Pass-Through environment to allow an automatic signon to the remote system.

If you want, you can use this automatic signon to, as much as possible, make usage of pass-through ″transparent″ to the workstation operator. That is, if you place SSP PASSTHRU or OS/400 STRPASTHR within a procedure or program, pass-through may be invoked as simply as taking an option on the workstation display. This option performs pass-through which could, for example, run a sales summary application on the target OS/400 or SSP.

Transparent return to the originating source operating system requires that the program on the target system perform an OS/400 ENDPASTHR or SIGNOFF ENDCNN(*YES) or an SSP OFF command.

For automatic signon, you need to pass user profile name and user profile password on the pass-through command and need to set up the target system as ″APPC secure″ (already secured). For OS/400, you also must ensure system value has QRMTSIGN set to support automatic signon. The following information provides additional details.

Figure 53 shows an SSP example with the appropriate OS/400 user profile and password parameters **1** .

```
                        PASSTHRU PROCEDURE              Optional-*

                     Sign on a remote system


Remote location name  . . . . . . . . . . . . . . . . . . . . . _______
Session group name  . . . . . . . . . . . . . . . . . . . . . . _______   *
Node list member name . . . . . . . . . . . . . . . . . . . . . _______   *
Node list member library  . . . . . . . . . . . . . . . . . . . _______   *
Virtual control unit  . . . . . . . . . . . . . . . . . . . . . _________ *


                            Additional Parameters

   1
User profile  . . . . . . . . . . . . . . . . . CURRENT,NONE,NAME  NONE____  *
User password . . . . . . . . . . . . . . . . . . . . NONE,NAME   ________  *
Initial procedure . . . . . . . . . . . . . NONE,RMTUSRPRF,NAME  RMTUSRPRR_*
Initial menu  . . . . . . . . . . . . .  SIGNOFF,RMTUSRPRF,NAME  RMTUSRPR__*
Current library . . . . . . . . . . . . . . . .  RMTUSRPRF,NAME  RMTUSRPR_ *
Display option  . . . . . . . . . . . . . . . . . . YES,NO,NAME  YES      _____


Cmd3-Previous menu                                  COPR IBM Corp  1990
```

Figure 53. SSP PASSTHRU Procedure Example

Figure 54 on page 278 shows an OS/400 example with the appropriate SSP user profile and password parameters **2** .

```
                        Start Pass-Through (STRPASTHR)
Type choices, press Enter.
Remote location  . . . . . . . . RMTLOCNAME   > _______
Virtual controller . . . . . . . VRTCTL         *NONE__
Virtual display device . . . . . VRTDEV         *NONE__
                          + for more values
Mode . . . . . . . . . . . . . . MODE           *NETATR_
Local location . . . . . . . . . LCLLOCNAME     *LOC____
Remote network identifier  . . . RMTNETID       *LOC____
System request program . . . . . SRQ1OPGM       *SRQMNU_
  Library  . . . . . . . . . . .
                           Additional Parameters
    2
User profile . . . . . . . . . . RMTUSER        *NONE___
User password  . . . . . . . . . RMTPWD         *NONE____
Initial program to call  . . . . RMTINLPGM      *RMTUSRPRF
Initial menu . . . . . . . . . . RMTINLMNU      *RMTUSRPRF
Type choices, press Enter.
Current library  . . . . . . . . RMTCURLIB      *RMTUSRPRF
Display option . . . . . . . . . PASTHRSCN      *YES____

                                                                   More...
F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
F24=More keys
```

Figure 54. OS/400 Display Pass-Through Example

In addition, to allow automatic Signon, you must use a **Remote Configuration List** on the OS/400 and run the **SECEDIT COMM** procedure on the SSP side to set the status of the system connection to secured.

For an OS/400 target system, the system value **QRMTSIGN** must not be set to *REJECT or *FRCSIGNON. You should also run the **SECEDIT PASSTHRU** procedure on the SSP side (selecting SAMEPRF or VERIFY) to match your specific requirements.

Important!

If two users use the same USERID on two different systems and auto Signon to the remote system is allowed, both can log on to the remote system. Therefore, you should consider using unique USERIDs.

Chapter 16. Distributed Data Management

Distributed Data Management (DDM) is an easy (and very useful) way to access data from another System/36 or AS/400 system. DDM between SSP and OS/400 has been available for several years. DDM allows a program written to access a disk or database file on a local system to have its I/O operations processed against a disk or database file on another system. In most instances routing to the remote data is defined outside of the application program, so no programming changes are required.

Note: DDM support between OS/400 and SSP does not include SQL-based interfaces as SSP does not understand SQL operations.

You can use DDM to access individual records or copy an entire file between an SSP and OS/400, whether they are on different hardware configurations or within the same Model 436.

16.1 Related DDM Publications

Refer to *Distributed Data Management Guide*, SC21-8011, for detailed SSP information.

Refer to *Distributed Data Management*, SC41-4307, for detailed OS/400 information.

16.2 DDM Between SSP and OS/400 Example

For this example, we have developed a simple environment using one OS/400 file and one SSP file. The intent of the example is to show the steps needed to set up the DDM Environment.

16.2.1.1 Create OS/400 Physical File

Sign on to the OS/400 machine and create the OS/400 Library that contains the DDM example files.

Type the following commands:

1. CRTLIB LIB(DDMLIB) TEXT('DDM Example Library')
2. Press Enter.
3. CRTPF FILE(DDMLIB/OS4FILE) RCDLEN(80)

   QDDSSRC can be used as a default source file from QGPL library.
4. Press Enter.

16.2.1.2 Create OS/400 DDM File

Type the following command:

1. CRTDDMF
2. Press F4.

The Create DDM File display is shown.

```
                              Create DDM File (CRTDDMF)

  Type choices, press Enter.

  DDM file . . . . . . . . . . . . > RMTSSP1       Name
    Library  . . . . . . . . . . . >   DDMLIB      Name, *CURLIB
  Remote file:
    File . . . . . . . . . . . . . > SSPFILE       Name, *NONSTD
      Library  . . . . . . . . . .                 Name, *LIBL, *CURLIB
    Nonstandard file 'name'  . . .



  Remote location  . . . . . . . . > IBMM3601      Name
  Text 'description' . . . . . . . > 'Remote SSP File IBMM3601'





                                                                       More...
  F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
  F24=More keys
```

Type the following parameters:

1. DDM file = RMTSSP1
2. Library = DDMLIB
3. Remote File = SSPFILE
4. Remote Location = IBMM3601
5. Press Enter.

Note: For the remote file, there is no library defined because, unlike OS/400, SSP does not store files in a library. If the remote system is an AS/400 system, a name and library is specified. If the remote system is a System/36, the remote file name is the same as its System/36 file label used by the SSP Operator Control Language (OCL). Labels for all other remote systems (including System/38) use *NONSTD followed by the remote file name in apostrophes (′). For target systems that allow naming conventions other than those used by the AS/400 system, System/38 simple file name and System/36, or when specifying a file member name for System/38 and the AS/400 system, enter the value *NONSTD followed by up to 255 characters for the name of the remote file being accessed.

The name must be in the form required by the target system. The name must always be enclosed in apostrophes. It may contain lowercase letters, blanks, periods, or other special characters. File names for the OS/400 system, System/38, and System/36 must be in uppercase letters. No blanks are allowed.

Repeat this step for each SSP machine, creating one DDM file for each SSP.

To check the OS/400 example, type:

1. DSPLIB LIB(DDMLIB)
2. Press Enter.

The Display Library display is shown.

```
                                Display Library

 Library  . . . . . . :   DDMLIB          Number of objects  . :   4
 Type . . . . . . . . :   PROD            ASP of library . . . :   1
 Create authority . . :   *SYSVAL

 Type options, press Enter.
   5=Display full attributes   8=Display service attributes

 Opt  Object      Type      Attribute               Size  Text
      OS4FILE     *FILE     PF                     20480
      RMTSSP1     *FILE     DDMF                    8192  Remote SSP File IBMM3
      RMTSSP2     *FILE     DDMF                    8192  Remote SSP File IBMM3
      RMTSSP3     *FILE     DDMF                    8192  Remote SSP File IBMM3



                                                                        Bottom
 F3=Exit   F12=Cancel   F17=Top   F18=Bottom
 (C) COPYRIGHT IBM CORP. 1980, 1995.
```

Your display should look the same as this.

Do the following:

1. Press F3.

16.2.1.3 Create SSP Example File

Sign on to the SSP machine and type:

1. BLDFILE SSPFILE,S,RECORDS,100,80,,T,,,NDFILE,,0
2. Press Enter.

16.2.1.4 Create Network Resource Directory (NRD)

The Network Resource Directory is used by DDM to access remote files.

Type the following command:

1. EDITNRD
2. Press Enter.

If there is no NRD on your SSP machine, the NETWORK RESOURCE DIRECTORY (Create a new directory) display is shown.

```
                         NETWORK RESOURCE DIRECTORY                Optional-*

                           Creates a new directory


  Number of entries . . . . . . . . . . . . . . . . . . . 1-9999    40--

  Preferred disk location . . . . . . .  A1,A2,A3,A4,block number   ------    *





  Cmd7-End
                                                          (c) 1985 IBM Corp.
```

Type the following parameter:

1. Number of entries = 40
2. Press Enter.

Note: The number of entries should count one for each remote file that is to be in the directory. The directory is created as an extendable disk file and can be extended by 40 entries. The directory file is named #NRD.FLE.

The NETWORK RESOURCE DIRECTORY display is shown.

```
                          NETWORK RESOURCE DIRECTORY

                        Edits entries in the directory

 Scan for local label  . . . . . . . . . . . . . . . . . . . .   --------

         LOCAL     REMOTE    REMOTE
         LABEL     LOCATION  LABEL

         RMTDDMOS  IM436M06  OS4FILE.DDMLIB
         --------  --------  --------------------------------------------------
         --------  --------  --------------------------------------------------
         --------  --------  --------------------------------------------------
         --------  --------  --------------------------------------------------


 Cmd4-Delete  Cmd6-Print    Cmd7-End   Cmd8-Reset     Cmd10-Add  Roll keys-Page
                                                             (c) 1985 IBM Corp.
```

Type the following parameters:

1. Local Label = RMTDDMOS
2. Remote Location = IM436M06
3. Remote Label = OS4FILE.DDMLIB
4. Press Enter.
5. Press F7.

Local Label =: This is the local label used by the local system when referencing a file on the FILE OCL statement or utility control statement.

Remote Location =: This is the ID of the remote system as it is known to the ICF subsystem.

Remote Label =: This is the name of the file on the remote system. The name has to conform to the remote system's naming convention for a file. The default value is the local file label if it is not specified.

16.2.2 Entering Data from IM436M06 Device into SSPFILE on IBMM3601

You can use DFU on OS/400 to enter data into the SSP machine file SSPFILE. DDM provides the transparent access to the file on the SSP.

On the OS/400 command line, type:

1. STRDFU 5
2. Press Enter.

The Update Data Using Temporary Program display is shown.

```
                    Update Data Using Temporary Program

 Type choices, press Enter.

   Data file . . . . . . . . .   RMTSSP1       Name, F4 for list
     Library . . . . . . . . .     DDMLIB      Name, *LIBL, *CURLIB
   Member  . . . . . . . . . .   RMTSSP1       Name, *FIRST, F4 for list




 F3=Exit     F4=Prompt     F12=Cancel
```

Type the following:

1. Data File = RMTSSP1
2. Library = DDMLIB
3. RMTSSP1
4. Press Enter.

You receive a message that DFU is creating a temporary program for you.

The WORK WITH DATA IN A FILE display is shown. The mode is CHANGE.

```
 WORK WITH DATA IN A FILE                        Mode . . . . :   CHANGE
 Format . . . . :   RMTSSP1                      File . . . . :   RMTSSP1

 *RECNBR:









 F3=Exit                 F5=Refresh               F6=Select format
 F9=Insert               F10=Entry                F11=Change
 You cannot delete records from this file.                                +
```

To get into Entry Mode:

1. Press F10.

The WORK WITH DATA IN A FILE display is shown again. The mode is ENTRY.

```
 WORK WITH DATA IN A FILE                      Mode . . . . :   ENTRY
 Format . . . . :   REMOTESSP                  File . . . . :   REMOTESSP


 F00001:  This Record is entered on IM436M06 using OS/400 DFU function





 F3=Exit                F5=Refresh               F6=Select format
 F9=Insert              F10=Entry                F11=Change
                                        (C) COPYRIGHT IBM CORP. 1980, 1995.
```

Do the following:

1. This record is entered on IM436M06 using OS/400 DFU function.
2. Press Enter.
3. Press F3.

The End Data Entry display is shown.

```
                                End Data Entry

   Number of records processed

     Added  . . . . . :          1
     Changed  . . . . :          0
     Deleted  . . . . :          0



  Type choice, press Enter.

    End data entry  . . . . . . .    Y           Y=Yes,  N=No



  F3=Exit       F12=Cancel
  All records added, changed, or deleted will be printed.
```

Do the following:

1. Press Enter.
2. Press F3.

Sign on to the SSP machine and type:

1. **FILE**
2. Press Enter.

A display similar to the following should be shown.

```
FILE       Free disk blocks: 51031 of 81101    Free VTOC entries:  894 of 960
Operation codes   B-Browse    D-Delete    E-Edit(DFU)    G-Generate    I-Info
                  J-Restore   K-Save      P-Print        Y-Copy
Command keys   1234-Column  5-Select  7-End  8-Records  9-Allocation  10-Date
               12-Compress  19-Off    HELP
 ?SSP-----------------------------------------------------------------------

_ ________ _       _ ________ _       _ ________ _         _ ________ _
_ $MYOCLTB I 858   _ SP0005#1 S 18   _ ________ _         _ ________ _
_ $OUDRAL  X 7     _ SP0006#1 S 17   _ ________ _         _ ________ _
_ $OUDRFL  I 7     _ SP0009#1 S 25   _ ________ _         _ ________ _
_ $OUGRFL  I 0     _ SSPDDM   S 1    _ ________ _         _ ________ _
_ $OUMLQ   I 190   _ SSPFILE  S 5    _ ________ _         _ ________ _
_ $OUMLTAB I 2     _ ________ _      _ ________ _         _ ________ _
_ #IWPCLD2 D 3140  _ ________ _      _ ________ _         _ ________ _
_ #IWPCLD4 D 2250  _ ________ _      _ ________ _         _ ________ _
_ #NRD.FLE I 8     _ ________ _      _ ________ _         _ ________ _
_ #ODFLOGF D 200   _ ________ _      _ ________ _         _ ________ _
_ CFGSYS   D 32    _ ________ _      _ ________ _         _ ________ _
_ CUSTCDT  S 12    _ ________ _      _ ________ _         _ ________ _
_ EDITPROF I 1     _ ________ _      _ ________ _         _ ________ _
_ NAMEADDR S 12    _ ________ _      _ ________ _         _ ________ _
_ NAMEPHON S 12    _ ________ _      _ ________ _         _ ________ _
_ SP0000W1 S 25    _ ________ _      _ ________ _         _ ________ _
```

Type the following:

1. **?SSP**
2. Press Enter.

   A display similar to the following example is shown:

```
FILE       Free disk blocks: 51031 of 81101    Free VTOC entries:  894 of 960
Operation codes   B-Browse    D-Delete    E-Edit(DFU)    G-Generate    I-Info
                  J-Restore   K-Save      P-Print        Y-Copy
Command keys   1234-Column  5-Select  7-End  8-Records  9-Allocation  10-Date
               12-Compress  19-Off    HELP
-----------------------------------------------------------------------------

_ _______ _        _ _______ _        _ ______ _        _ _______ _
_ SSPDDM  S 1      _ _______ _        _ ______ _        _ _______ _
B SSPFILE S 5      _ _______ _        _ ______ _        _ _______ _
_ _______ _        _ _______ _        _ ______ _        _ _______ _
_ _______ _        _ _______ _        _ ______ _        _ _______ _
_ _______ _        _ _______ _        _ ______ _        _ _______ _
_ _______ _        _ _______ _        _ ______ _        _ _______ _
_ _______ _        _ _______ _        _ ______ _        _ _______ _
_ _______ _        _ _______ _        _ ______ _        _ _______ _
_ _______ _        _ _______ _        _ ______ _        _ _______ _
_ _______ _        _ _______ _        _ ______ _        _ _______ _
_ _______ _        _ _______ _        _ ______ _        _ _______ _
_ _______ _        _ _______ _        _ ______ _        _ _______ _
_ _______ _        _ _______ _        _ ______ _        _ _______ _
_ _______ _        _ _______ _        _ ______ _        _ _______ _
_ _______ _        _ _______ _        _ ______ _        _ _______ _
_ _______ _        _ _______ _        _ ______ _        _ _______ _
```

3. Enter B next to SSPFILE
4. Press Enter.

The file is shown.

```
 File: LOCALSSP 95/08/24     Record        1 of 1        Columns    1 thru 80

This Record is entered on IM436MO6 using OS/400 DFU function
--------------------------------  END OF FILE  --------------------------------
```

Data was entered from an OS/400 display to update an SSP machine file using DDM. This is transparent to the application program and end user (assuming the DDM files and ILAN connections are established).

16.3 Preparing a NRD for Electronically Ordered PTFs

The AS/400 Advanced 36 Model 436 allows you to receive PTFs through ECS if you have OS/400, SSP, and ILAN running. It uses the DDM copy function to copy the PTF data from the save file on OS/400 to the SSP PTF file. Refer to *AS/400 Advanced 36 Operator Tasks - Multiple Operating Systems*, SC21-8384.

To set up the NRD, do the following:

1. Sign on to the SSP machine.
2. Type EDITNRD
3. Press Enter.

If the NRD is on your system, the Network Resource Directory display is shown. If the NRD is not on your system, refer to 16.2.1.4, “Create Network Resource Directory (NRD)” on page 281.

```
                          NETWORK RESOURCE DIRECTORY

                        Edits entries in the directory

 Scan for local label  . . . . . . . . . . . . . . . . . . . . .   --------
 ------------------------------------------------------------------------------

         LOCAL     REMOTE    REMOTE
         LABEL     LOCATION  LABEL

         RMTDDMOS  IM436M06  OS4FILE.DDMLIB
         LOCPTFFL  IM436M06  RMTPTFFL-------------------------------------------
         --------  --------  ------------------------------------------------
         --------  --------  ------------------------------------------------
         --------  --------  ------------------------------------------------


 Cmd4-Delete  Cmd6-Print    Cmd7-End   Cmd8-Reset     Cmd10-Add  Roll keys-Page
                                                             (c) 1985 IBM Corp.
```

Type the following parameters:

1. Local Label = LOCPTFFL
2. Remote Location = IM436M06
3. Remote Label = RMTPTFFL

Note: The name of the Remote Label is changed to the SSP Unnnnnn PTF number downloaded when your first electronically sent PTF arrives.

This completes the DDM setup for ECS PTFs. Now, anytime you use the ECSAPTCH SSP command, you are prompted to edit the remote label field of this Network Resource Directory entry.

Refer to 5.2.7, “Installing PTFs Received Electronically” on page 128.

16.4 DDM Considerations

The following are important DDM consideration when communicating between an SSP and OS/400. They are grouped into supported and unsupported headings.

16.4.1 Supported

To enter data through DDM, you can use:

1. A high-level language, such as RPG and COBOL
2. DFU
3. Copy file statements

16.4.2 Unsupported

You cannot use:

1. SQL
2. IDDU

Chapter 17. Object Distribution Facility

ODF allows users or applications to send objects and messages to other users on the same system one or more SSP machines are started along with OS/400 as well as users on real remote physical S/36, S/38, AS/400 systems, and S/370s in a network. Objects include, data files, source program files, spooled output, and mail documents. SSP and OS/400 can submit remote jobs to each other under ODF support.

Configuration for ODF includes identifying users and the system the user resides on (″directory entries″) and communications routes and queues. Communication routes use system names, APPC location names, and SNA mode (SSP session group) definitions. ODF uses SNA Distribution Services (SNADS) capabilities which are store and forward implementations. This enables transmission to a distribution list, timed transmission, and automated retry of failed transmissions.

This chapter shows send and receive examples. It does not show the details of defining the configuration for ODF within SSP or OS/400. For a detailed description of ODF for OS/400, refer to *Using Object Distribution Facility*, SC21-8367. For a detailed description of ODF for S/36, refer to *IBM System/36 Using the Object Distribution Facility PRPQ*, SC21-9800.

These ODF manuals provide cross-reference configuration examples between System/36 and OS/400. Merely substitute the SSP location name of IBMM3601 (IBMM3602, IBMM3603) and OS/400 control point/location name of IM436M06 used in Chapter 4, “Internal Local Area Network” on page 75 in those configuration examples.

17.1 ODF and SNADS Configuration Summary

On both the sending and receiving systems, you need the APPC remote and local configurations defined and add to this, SNADS definitions for:

- A distribution queue for sending objects that identifies the appropriate remote APPC location.

  These queues can be defined with sending time schedules and thresholds for the number of queue entries before attempting to send to the remote APPC location.

  Retry counts and retry delay times can also be defined.

- Routing configuration information that defines a two-part user name (Name and Address fields) that exists on the receiving system for receiving objects and a two-part user name that you send objects to.

  The two-part user name must be associated with a defined system name.

  These two-part user names are often referred to as ″directory entries″.

  A distribution list can be composed of multiple directory entries so that the actual Send function may identify a distribution list name and not all of the individual user directory entries.

- Routing configuration information that defines the local system name and the remote system name.

  For outgoing distributions, the user name is associated with a system name and the system name is associated with a distribution queue. The distribution is then

sent based on the distribution queue definitions for time of day and number of distributions on the queue.

If a distribution list is used, the individual user names on the list determine how many distribution queues are used. If multiple systems specify the same distribution queue, only a single copy of the object is placed on the queue for distribution.

17.2 Using ODF Support to Send an Object

Send an Object: In this example, we show how to use ODF to send a File from IBMM3601 to IM436M06.

Assume that you signed on to an SSP machine as USERID CHIAWW. On the SSP command line, type the following:

1. MENU ODFSND
2. Press Enter.

The ODFSND display is shown.

```
COMMAND                          ODFSND                                  #1

                               Send an Object

Select one of the following:

 1. Send a file
 2. Send a folder
 3. Send a job stream
 4. Send library member(s)
 5. Send a spooled print file









Cmd3-Previous menu     Cmd5-Main help menu                 COPR IBM Corp. 1988

Ready for option number or command
1
```

Type the following:

1. 1
2. Press Enter.

The SEND FILE OR GROUP OF FILES THROUGH NETWORK display is shown.

```
                 SEND FILE OR GROUP OF FILES THROUGH NETWORK
Type choices, press Enter.
 ITEM                              CHOICE     POSSIBLE CHOICES
 File name  . . . . . . . . . .    SSPFILE    Name, ALL
  If ALL, enter group name  . .
 Creation date  . . . . . . . .
 Format . . . . . . . . . . . .    DATA       S36FMT, DATA, PUNCH
 User . . . . . . . . . . . . .    KLAUSP
 Address  . . . . . . . . . . .    IM436M06
 Priority . . . . . . . . . . .    50         1-99
 RSCS distribution code . . . .
 RSCS class . . . . . . . . . .    A          A-Z
 Acknowledgment . . . . . . . .    NOACK      NOACK, ACK









Cmd3=Go back            Cmd5=Add user list        Cmd7=End
                                                            COPR IBM Corp. 1988
```

Type the following:

1. File Name = SSPFILE
2. Format = DATA
3. User = KLAUSP
4. Address = IM436M06
5. Press Enter.
6. The message **** Send request has been processed** is shown.
7. Press F7.
8. Press F3.

Work with communication Queues: Type the following:

1. Menu ODFOPR
2. Press Enter.

The ODFOPR display is shown.

```
COMMAND                          ODFOPR                                  #2

                           Perform daily operations

Select one of following:

 1. Start a RSCS link
 2. Stop a RSCS link
 3. Start ODF/36 background tasks
 4. Stop ODF/36 background tasks
 5. Start PS/36 (SNA/DS) background tasks
 6. Stop PS/36 (SNA/DS) background tasks
 7. Work with entries for a RSCS link
 8. Work with PS/36 (SNA/DS) communication queues.



Cmd3-Previous menu     Cmd5-Main help menu                 COPR IBM Corp. 1988

Ready for option number or command
8
```

Type the following:

1. 8
2. Press Enter.

The CONTROL COMMUNICATIONS QUEUES display is shown.

```
                        CONTROL COMMUNICATIONS QUEUES              All

 Type options beside entries below, press Enter
 Options: 1=Hold  2=Release  3=Display entries  4=Start transmission

          REMOTE    SESSION
  OPTION  LOCATION  GROUP        HELD    SENDING
    3     IM436MO6  *BLANK       NO      NO

 Cmd3=Go back        Cmd7=Quit           Roll=Page
```

Type the following:

1. 3
2. Press Enter.

The DISPLAY QUEUE ENTRIES display is shown.

```
                           DISPLAY QUEUE ENTRIES                   All
 Remote Location     IM436MO6
   Session Group     *BLANK
 Send Length          0

 Type options beside entries below, press Enter
 Options:  1=Hold  2=Release  4=Delete

         SENDER    SENDER
  OPTION SYSTEM    USER ID   DATE      TIME      HELD  PRIORITY SENDING
                   KLAUSP    11/22/95  17:28:17  NO       2     NO

 Cmd3=Go back       Cmd7=Quit         Roll=Page
```

Type the following:

1. Press F3.

The CONTROL COMMUNICATIONS QUEUES display is shown.

```
                        CONTROL COMMUNICATIONS QUEUES              All

Type options beside entries below, press Enter
Options: 1=Hold  2=Release  3=Display entries  4=Start transmission

         REMOTE    SESSION
 OPTION  LOCATION  GROUP        HELD    SENDING
   4     IM436MO6  *BLANK       NO      NO



Cmd3=Go back        Cmd7=Quit           Roll=Page
```

Type the following:

1. 4
2. Press Enter.

The CONTROL COMMUNICATIONS QUEUES display is shown.

```
                        CONTROL COMMUNICATIONS QUEUES              All

Type options beside entries below, press Enter
Options: 1=Hold  2=Release  3=Display entries  4=Start transmission

         REMOTE    SESSION
 OPTION  LOCATION  GROUP        HELD    SENDING
         IM436MO6  *BLANK       NO      YES



Cmd3=Go back        Cmd7=Quit           Roll=Page
```

Note: The Status of the Queue is Sending YES and changes back to Sending NO after the file is processed.

Do the following:

1. Press F3.

The Message Display panel is shown.

```
                                Message Display                                #2

  From-PRETSCH     Address-IM436MO6   Date-11/22/95         Time- 17:41:16
ODF-8070 Object SSPFILE   M951116  arrived for KLAUSP   IM436MO6



                          Press Enter to continue
```

Receive ODF Files on the OS/400: Sign on to the OS/400 using the KLAUSP user profile.

Type the following:

1. DSPMSG
2. Press Enter.

The Display Message display is shown.

```
                                Display Messages
                                                          System:   IM436MO6
Queue . . . . . :   KLUASP                  Program . . . . :   *DSPMSG
  Library . . . :     QUSRSYS                 Library . . . :
Severity  . . . :   00                      Delivery  . . . :   *NOTIFY

Type reply (if required), press Enter.
  File SSPFILE member M951116 number 8 received from user CHIAWW IBMM36O1.



                                                                        Bottom
F3=Exit              F11=Remove a message                 F12=Cancel
F13=Remove all       F16=Remove all except unanswered     F24=More keys
```

Do the following:

1. Press Enter.

The AS/400 Main Menu display is shown.

```
MAIN                              AS/400 Main Menu
                                                                  System:   IM436M06
Select one of the following:

     1. User tasks
     2. Office tasks
     3. General system tasks
     4. Files, libraries, and folders
     5. Programming
     6. Communications
     7. Define or change the system
     8. Problem handling
     9. Display a menu
    10. Information Assistant options
    11. Client Access/400 tasks

    90. Sign off

Selection or command
===> wrknetf

F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel   F13=Information Assistant
F23=Set initial menu
```

Type the following:

1. WRKNETF
2. Press Enter.

The Work with Network Files display is shown.

```
                          Work with Network Files                   IM436M06
                                                              11/22/95  17:51:27
User . . . . . . . . . . . . :   KLAUSP
User ID/Address  . . . . . . :   KLAUSP    IM436M06

Type options, press Enter.
  1=Receive network file   3=Submit job   4=Delete network file
  5=Display physical file member

                              File   -------From-------  ----Arrival----
Opt  File        Member       Number  User ID   Address   Date      Time
 1   SSPFILE     M951116           8  QSECOFR   IBMM3601  11/22/95  17:41




                                                                      Bottom
Parameters or command
===>
F3=Exit   F4=Prompt   F5=Refresh   F9=Retrieve   F11=Display type/records
F12=Cancel
```

Note: On OS/400, you must have pre-created a physical database file prior to *receiving* into that file.

Type the following:

1. CRTPF FILE(DDMLIB/SSPFILE) RCDLEN(80) MBR(*NONE)

   This example shows a file with no unique field definitions. You may also have used a DDS source file that contained externally defined fields.

2. Press Enter.

Type the following:

1. 1
2. Press F4.

The Receive Network File display is shown.

```
                         Receive Network File (RCVNETF)

  Type choices, press Enter.

  From file  . . . . . . . . . . . > 'SSPFILE'     Character value
  To file  . . . . . . . . . . . .   SSPFILE       Name, *FROMFILE
    Library  . . . . . . . . . . .     DDMLIB      Name, *LIBL, *CURLIB
  Member to be received  . . . . . > 'M951116'     Character value, *ONLY
  To member  . . . . . . . . . . .   *FROMMBR      Name, *FROMMBR, *FIRST

                                                                    Bottom
  F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cancel
  F13=How to use this display        F24=More keys
```

```
                            Work with Network Files                   IM436M06
                                                              11/22/95  18:01:55
  User . . . . . . . . . . . . . :   KLAUSP
  User ID/Address  . . . . . . . :   KLAUSP    IM436M06

  Type options, press Enter.
    1=Receive network file   3=Submit job   4=Delete network file
    5=Display physical file member

                                 File   -------From-------  ----Arrival----
  Opt  File        Member       Number  User ID   Address   Date      Time

    (No network files)

                                                                    Bottom
  Parameters or command
  ===>
  F3=Exit   F4=Prompt   F5=Refresh   F9=Retrieve   F11=Display type/records
  F12=Cancel
  Member M951116 added to file SSPFILE in DDMLIB.                           +
```

The message "Member M951116 added to file SSPFILE in DDMLIB" is shown.

The message File SSPFILE member M951116 number 1 received is shown.

Type the following:

1. DSPPFM FILE(DDMLIB/SSPFILE)

   You can view the received file by using the Display Physical File Member command.

2. Press Enter.

The Display Physical File Member display is shown.

```
                         Display Physical File Member
File . . . . . . :   SSPFILE             Library  . . . . :   DDMLIB
Member . . . . . :   M951116             Record . . . . . :   1
Control  . . . . .                       Column . . . . . :   1
Find . . . . . . .
*...+....1....+....2....+....3....+....4....+....5....+....6....+....7....+...
This Record was entered on IBMM3601      using IDDU
This Record was entered on IM436M06 using DFU/400
This Record was entered on IBMM3601     using DFU Program DFUSSP
This Record was entered on IBMM3603     using DFU Program DFURMT
This Record is entered on IM436M06 using OS/400 DFU function
                          ****** END OF DATA ******









                                                                        Bottom
F3=Exit   F12=Cancel   F19=Left   F20=Right   F24=More keys
```

Part 6. Using AS/400 Facsimile Support for OS/400

This part provides examples on using OS/400 Facsimile Support to send SSP printed output to a receiving facsimile machine.

This part contains the following chapter:

- Chapter 18, “Facsimile Support for OS/400 for the SSP Operator” on page 299

Chapter 18. Facsimile Support for OS/400 for the SSP Operator

One of the advantages of using OS/400 on the AS/400 Advanced 36 is the SSP user can make use of the facsimile (″fax″) support available with the Facsimile Support for OS/400 product, 5798-TAY.

The objective of this chapter is to assist the SSP user in ″getting started″ to use Facsimile Support/400 by showing the setup of an environment that supports fax output with no changes to the SSP application.

For viewing incoming fax documents, the SSP user must pass-through to OS/400 and use the Facsimile Support/400 product, as the SSP operating system itself does not support the required workstation to display fax images.

This chapter is meant to be a step-by-step approach for the operation and usage setup for the SSP and OS/400 machines. It is **not** intended to describe how to install and customize Facsimile Support/400 for all of its functions.

For detailed instructions on installing and customizing Facsimile Support for OS/400, see the following manuals:

Facsimile Support for OS/400 Installation Guide, SC41-0570

Facsimile Support/400 Version 3 Release 1.1, SG24-4636

Note: References to Facsimile Support through the remainder of this chapter refer to the Facsimile Support/400 product. The term *Facsimile Support* is simply used as a ″nickname″ for the Facsimile Support/400 product throughout this chapter.

The following topic provides a summary of Facsimile Support/400 capabilities.

18.1 Facsimile Support/400 Overview

The following figure provides an overview of the Facsimile Support/400 environment.

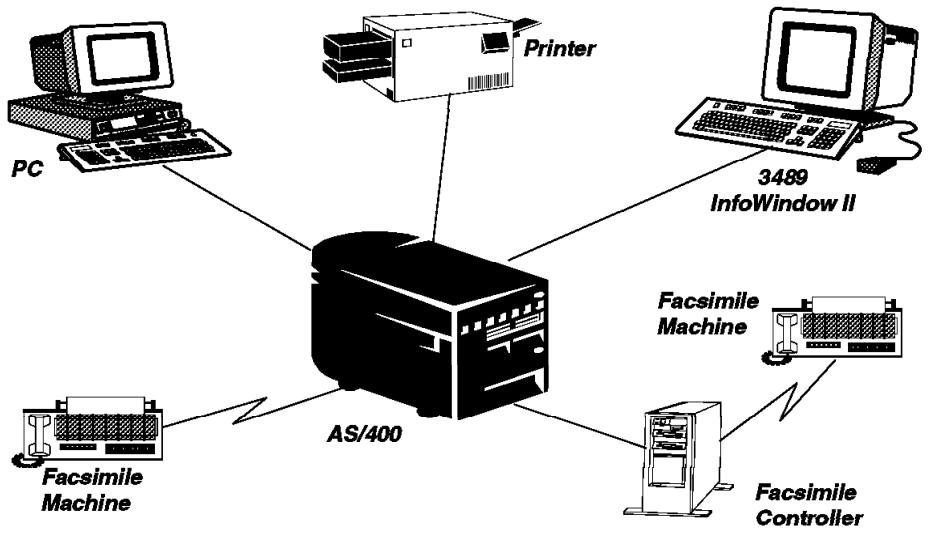


Figure 55. Facsimile Support for OS/400 Environment

AS/400 spooled output can be printed and sent to a facsimile (fax) machine. This is called an outbound fax. An inbound fax can be received in an unattended manner and placed in an OS/400 database file member. An optional notification is placed on an OS/400 data queue. This database file member is an encoded binary data stream that is not viewable by an end user until some kind of data transformation is performed. The Facsimile Support/400 FILFAX command performs a conversion to an IBM document architecture format and places the ″document″ in an OS/400 folder.

This folder document can be viewed by using an OS/400 attached IBM 3489 InfoWindow display device or on a personal computer by using the AFP (Advanced Function Printer) Workbench or an image software package.

A PRTFAX command is issued against the database file member to convert the fax data to an AFPDS (Advanced Function Printer Data Stream) spooled file. This spooled file can then be printed on an IPDS AFP capable printer, a PPDS3/4, or a PCL4/5 ASCII printer.

Facsimile Support/400 provides configuration support for the AS/400 Fax adapter hardware (Integrated Fax Adapter, feature code 2664), determining the status of inbound and outbound faxes, and logs fax activity.

The rest of this chapter focuses on faxing SSP printed output and is organized around three sets of steps:

- The first set describes how to set up an environment in SSP such that printed output directed to a specific printer ID is automatically routed to OS/400.
- The second set explains the steps the Model 436 user follows to set up the OS/400 environment to receive the printed output initiated in the SSP machine.

  These first two sets of steps enable OS/400 handling of both SSP and OS/400 spooled output regardless of whether or not faxing of the output is desired. You can use the OS/400 Start Print Writer (STRPRTWTR) command to print the data or use AS/400 Facsimile Support to fax the printed output.
- The third set of steps explains the steps the Model 436 user follows to actually send the spooled output as a fax.

Note: This chapter does not describe faxing when the output originates in OS/400. This process is fully described in the redbook *Facsimile Support/400 Version 3 Release 1.1*, SG24-4636.

In this chapter, we assume that the Advanced 36 Model 436 has both SSP and OS/400 machines defined and operational. We also assume the ILAN is defined and operational to allow communication between the coexisting operating systems, although routing printer output between SSP and OS/400 and use of FAX does not require ILAN support.

For instructions on how to set up either of these machines, refer to

- *Changing your System Configuration - SSP*, SC21-8295
- *Advanced 36 Coexistence User's Guide Version 3*, SC21-8386
- *Getting SSP and OS/400 Installed and Running*, SC21-8377
- *Advanced 36 Operator Tasks - Multiple Operating Systems*, SC21-8384
- Chapter 4, “Internal Local Area Network” on page 75 in this redbook

Generally, any spooled OS/400 output can be faxed using the Facsimile Support for OS/400 product (5798-TAY). Therefore, if you set up your SSP and SSP machine configuration object to support directing SSP output to OS/400 for output, you have completed the SSP task. You then have to use Facsimile Support on the AS/400 system to perform the actual fax transmission.

OS/400 SSP Configuration

This chapter includes examples of the OS/400 SSP machine (object type *M36) and SSP machine configuration object (object type *M36CFG). Refer to Chapter 3, “AS/400 Advanced 36 Configuration Example” on page 23 for more details on the SSP machine and SSP machine configuration object.

We start by reminding you that SSP printed output can be spooled or not (non-spooled data is sent directly to a printer). SSP output spooling is controlled either by the // PRINTER OCL STATEMENT (SPOOL-YES or SPOOL-NO parameter) or by configuring SSP to support spooling. (Refer to display 15.0, Question 8 ″Do you want print spooling active?″ in CNFIGSSP - Base SSP).

18.2 Getting Started

There are three general tasks involved in creating the fax environment on a coexistence machine.

- Ensure that Facsimile Support for OS/400 is installed and customized.
- Prepare the SSP machine for a fax environment.
- Prepare the OS/400 system for a fax environment.

These areas are covered in the remainder of this chapter.

18.2.1 Setting Up Facsimile Support for OS/400

Before you can use the Facsimile Support for OS/400 product, it must be installed and customized to meet the needs of your business. Before proceeding, ensure that the Facsimile Support product is installed. Facsimile Support objects reside in library QFAX. Therefore, you can quickly check for the existence of objects in library QFAX, or simply request the FAX menu.

However, to more effectively verify that the Facsimile Support for OS/400 product was installed correctly, you should use the OS/400 Check Product Option (CHKPRDOPT) command as follows:

```
CHKPRDOPT PRDID(5798TAY) OPTION(*BASE) LODID(*CODEDFT)
```

You may also use the OS/400 Display Software Resource (DSPSFWRSC) command to see if 5798TAY has been installed. In the following DSPSFWRSC example, Client Access/400 is installed. By paging to the end of the 5763xxx Resource ID list, you find a display similar to the following that indicates Facsimile Support has been installed.

If you see *ERR for the description, the product did not install error free. Please check with your system administrator to complete product installation.

```
                          Display Software Resources
                                                                System: IM436M06
Resource
   ID     Option  Feature  Description
5763XG1   *BASE    2924    Client Access/400 Optimized for OS/2
5763XG1   1        5050    Client Access/400 - RUMBA Optimized for OS/2
5763XG1   1        2924    Client Access/400 - RUMBA Optimized for OS/2
5763XG1   2        5050    Client Access/400 - PC5250 Optimized for OS/2
5763XG1   2        2924    Client Access/400 - PC5250 Optimized for OS/2
5763XG1   3        5050    Client Access/400 - GraphicOps for OS/2
5763XG1   3        2924    Client Access/400 - GraphicOps for OS/2
5763XG1   5        5050    Client Access/400 - Graphical Access for OS/400
5763XG1   5        2924    Client Access/400 - Graphical Access for OS/400
5763XL1   *BASE    5050    Client Access/400 for DOS
5763XL1   *BASE    2924    Client Access/400 for DOS
5763XL1   1        5050    Client Access/400 - DOS SBCS
5763XL1   1        2924    Client Access/400 - DOS SBCS
5798TAY   *BASE    5050    IBM Facsimile Support for OS/400
5798TAY   *BASE    2924    IBM Facsimile Support for OS/400

Press Enter to continue.                                            More....

F3=Exit   F11=Display libraries/releases   F12=Cancel
```

Refer to the *Facsimile Support for OS/400 Installation Guide*, SC41-0570, for further information on this command.

You should also check with your system administrator to ensure the Facsimile Support product is customized to meet your department's needs. It is recommended that Enhanced Services be customized, as this allows an easier end user interface to the product. Our example assumes that Enhanced Services is customized and started when Facsimile Support is started.

18.2.2 SSP Setup to Interface with OS/400 for Fax Output

This section explains the steps required for the SSP user to set up an environment where reports directed to a particular S/36 printer ID are automatically directed to an OS/400 spool output queue - an OS/400 "*OUTQ." The OUTQ serves as an interface to the Facsimile Support/400 programs.

Note: Within this redbook, we use "*OUTQ" as the SSP specification to mean **an OS/400 output queue (OUTQ), rather than an SSP printer ID or SSP spool support.**

For ease of use, we utilize an *OUTQ for printing through OS/400 spool support rather than a printer device. The OS/400 fax "writer" is started against an OS/400 OUTQ.

To help avoid *printer device* writers being started for the OUTQ where a potential fax output resides, we define an OUTQ to be used "just for" the Facsimile Support/400 product sending and receiving faxes. We direct SSP output that is faxed to this OUTQ.

You need to assign application output to an SSP printer ID that is used to direct the output to OS/400 through the OUTQ. So that a writer does not get started for the printer specified, it is best to define a printer ID for a device that does **not** (physically) exist on the system.

The following steps outline creating this printer definition within an SSP machine.

1. On the SSP command line, type CNFIGSSP.
2. Press Enter.

   The CNFIGSSP MAIN MENU display 1.0 is shown.

```
  1.0           CNFIGSSP  -  MAIN MENU                          W1

Select one of the following:
   1. How to use CNFIGSSP
   2. Create, change, or delete a configuration member
   3. Review a configuration
   4. Print a configuration

  10. Configuration support aids

  12. Apply change to the master configuration record
  13. Rebuild the master configuration record (update
      to next release)
  14. End CNFIGSSP

 Option:      2

 Cmd3-Previous menu
   Help text is available throughout the CNFIGSSP
   procedure by pressing the help key
```

3. Select option 2 to Create, change or delete a configuration member.
4. Press Enter.

   In this example, we are changing an existing configuration member. Our member name is FAXCNFIG stored in #CNFGLIB.

```
 3.0               CONFIGURATION MEMBER DEFINITION                  W1
Select one of the following:

  1. Change an existing configuration member
  2. Create a new configuration member
  3. Delete a configuration member



Option . . . . . . . . . . . . . . . . . . . . . . . . .    1

Member name. . . . . . . . . . . . . . . . . . . . . . .    FAXCNFIG

Library name . . . . . . . . . . . . . . . . . . . . . .    #CNFGLIB

Cmd3-Previous menu
```

5. Fill in the Member and Library names as appropriate and select option 1 to Change an existing configuration member.
6. Press Enter.

   The CONFIGURATION MEMBER DESCRIPTION display 6.0 is shown.

```
 6.0                CONFIGURATION MEMBER DESCRIPTION      FAXCNFIG   W1
1. Describe the configuration member (up to 60 characters):

   SSP CONFIGURATION WITH PRINTER DEFINED FOR FAX USE

2. Specify main storage size in K-bytes . . . . .  0128-8192    8192

3. Specify disk storage size in M-bytes . . . . .  0030-4295    0207



Cmd3-Previous menu
```

7. Type in an appropriate description.
8. Press Enter.

   The CONFIGURATION MEMBER MENU display 5.0 is shown.

```
 5.0                  CONFIGURATION MEMBER MENU           FAXCNFIG   W1

Select one of the following:

1. Work with display stations and printers
2. Add or delete program products, optional SSP, and features
3. Define base SSP values
4. Specify sizes for disk VTOC, history file, and task work area

If no more changes are to be made to your configuration member
select the following option:

5. Save configuration member and return to main menu for CNFIGSSP

Option:      1

Cmd3-Previous menu        Cmd19-Cancel
```

9. Select option 1 to Work with display stations and printers.
10. Press Enter.

    The CONFIGURATION - DISPLAY STATION AND PRINTER MENU display 27.0 is shown.

```
27.0    CONFIGURATION - DISPLAY STATION AND PRINTER MENU FAXCNFIG    W1

Select one of the following:

 1. Add or delete local display stations and printers
 2. Add or delete remote line characteristics
 3. Add or delete remote controllers, display stations,
    and printers
 4. Assign default printers to display stations
 5. Assign display station control (subconsoles) for printers
 6. Change display station or printer work station IDs
 7. Change display station or printer characteristics
 8. Select the system printer
 9. Add remote service device definition
10. Delete remote service device definition
11. Return to previous menu

Option:      1

Cmd3-Previous menu     Cmd19-Cancel
```

11. Select option 1 to Add or delete local display stations and printers.
12. Press Enter.

The CNFIGSSP - WORK STATION DEFINITION LOCAL display 12.0 is shown.

```
12.0  CNFIGSSP - WORK STATION DEFINITION        LOCAL   FAXCNFIG    W1

Specify the arrangement of your display stations and printers.
The positions correspond to the work station address:

  Printers:  IPDS printers

       0     1     2     3     4     5     6    <--Work station address
      10    16                                  00 -- P | ------- |
                                                01 -- O |         |
      HA                                        02 -- R |         |
                                                03 -- T |  S/36   |
                                                04 -- S |         |
                                                05 --   |         |
                                           PH   06 --   |         |
                                                07 --   | ------- |

Cmd3-Previous menu          Cmd5-Display device codes       Cmd19-Cancel
```

If fax documents are to be printed, they must print on an IPDS printer, an ASCII printer with OS/400 Host Print Transform, or the local image printer on an IBM 3489 InfoWindow II Modular Display Station.

In this example, we define printer P6 with address 6 on port 6 for our fax printer. We select device code PH for a generic IPDS printer.

Note: For information on how to print faxes on AS/400 printers, refer to the chapter on ″Printing Faxes on IPDS and ASCII Printers″ in the redbook *Facsimile Support/400 Version 3 Release 1.1*, SG24-4636.

13. Type code PH at SSP port 06 and address 6.
14. Press Enter.

    In our example, we define an SSP printer with ID P6. A physical device is **not** required to be at the address defined for the SSP printer. P6 is defined in the following steps.

15. Press Enter repetitively on the subsequent displays (once per S/36 port) until the 27.0 CONFIGURATION - DISPLAY STATION AND PRINTER MENU display is shown.

```
27.0  CONFIGURATION - DISPLAY STATION AND PRINTER MENU   FAXCNFIG    W1

Select one of the following:

  1. Add or delete local display stations and printers
  2. Add or delete remote line characteristics
  3. Add or delete remote controllers, display stations,
     and printers
  4. Assign default printers to display stations
  5. Assign display station control (subconsoles) for printers
  6. Change display station or printer work station IDs
  7. Change display station or printer characteristics
  8. Select the system printer
  9. Add remote service device definition
 10. Delete remote service device definition
 11. Return to previous menu

Option:      6

 Cmd3-Previous menu     Cmd19-Cancel
```

16. Select option 6 to Change display station or printer workstation IDs.

17. Press Enter.

    On the CNFIGSSP - WORK STATION ID ASSIGNMENTS display 40.0, we select the ID of the printer to change.

18. Press Enter repetitively until you get to the display describing the port your IPDS printer is to be defined on. In our example, this is Port number 06.

```
40.0   CNFIGSSP - WORK STATION ID ASSIGNMENTS           FAXCNFIG    W1

Change the work station ID, assigned printer, or subconsole
assignment.


        Port number  . . . . . . . . .    06
        Work station address . . . . .    0   1   2   3   4   5   6
        Device code  . . . . . . . . .                            PH

     1. Work station ID  . . . . . . .                            P6

     2. Assigned printer ID  . . . . .

     3. Subconsole ID  . . . . . . . .                            W1


Cmd3-Previous menu      Cmd19-Cancel
   Printer. . . P1   Port. . . 02   Address. . . 0
   Is currently the system printer
```

19. Type the Workstation ID desired at the appropriate space on the matrix. In our example, we type **P6** under address 6.

    The Subconsole ID can be left as W1 or your assigned console.

20. Press Cmd3 to return to display 27.0.

```
27.0  CONFIGURATION - DISPLAY STATION AND PRINTER MENU   FAXCNFIG    W1

Select one of the following:

  1. Add or delete local display stations and printers
  2. Add or delete remote line characteristics
  3. Add or delete remote controllers, display stations,
     and printers
  4. Assign default printers to display stations
  5. Assign display station control (subconsoles) for printers
  6. Change display station or printer work station IDs
  7. Change display station or printer characteristics
  8. Select the system printer
  9. Add remote service device definition
 10. Delete remote service device definition
 11. Return to previous menu

Option:      7

Cmd3-Previous menu     Cmd19-Cancel
```

21. Select option 7 to Change display station or printer characteristics.

    Press Enter.

    The CNFIGSSP -- CHARACTERISTICS ASSIGNMENT display 28.0 is shown.

```
28.0    CNFIGSSP -- CHARACTERISTICS ASSIGNMENT                FAXCNFIG    W1
Place an asterisk next to the display station or
printer that is to have its characteristics changed.
       0     1     2     3     4     5     6    <--Work station address
      W1    W2                                    0 -- P |--------|
                                                  1 -- O |        |
      P1                                          2 -- R |        |
                                                  3 -- T |        |
                                                  4 -- S |  S/36  |
                                                  5 --   |        |
                                          * P6    6 --   |        |
                                                  7 --   |--------|

Cmd3-Previous menu          Cmd5-Show device codes
```

22. Place an asterisk ***** in front of the printer ID you just defined.
23. Press Enter.

    The CNFIGSSP - PRINTER CHARACTERISTICS display 30.0 is shown.

```
30.0                CNFIGSSP - PRINTER CHARACTERISTICS        FAXCNFIG     W1
Specify the characteristics for the designated printer

Port number 06 ->                        P6
Subconsole ID . . . . . . . . . . . . . . . . . . . . . .     W1
    1. Font ID . . . . . . . . . . . . . . . . . . . . . .    OB
    2. Automatic vary on?  . . . . . . . . . . . . . . . Y,N    N
    3. Spool writer high priority?  .  . . . . . . . . . Y,N    N
    4. Spool separator pages . . . . . . . . . . . . . . 0-3    0
    5. Number of spool buffers . . . . . . . . . . . . . 1-8    1
    6. Lines per inch  . . . . . . . . . . . . . . . . 0,4,6,8    6


Cmd3-Previous menu       Cmd19-Cancel
```

24. Select N for No on the Automatic vary on characteristic.

    Since this is a ″phantom″ printer, we do not want it to vary on at IPL.

    The rest of the parameters can be left as the displayed default.
25. Press Enter.
26. Press Enter again; then Cmd3 to return to the 27.0 CONFIGURATION - DISPLAY STATION AND PRINTER MENU display.
27. Press Cmd3.

    This returns us to the 5.0 CONFIGURATION MEMBER MENU display to allow us to save the configuration member with its changes.

```
 5.0                CONFIGURATION MEMBER MENU              FAXCNFIG   W1

 Select one of the following:

 1. Work with display stations and printers
 2. Add or delete program products, optional SSP, and features
 3. Define base SSP values
 4. Specify sizes for disk VTOC, history file, and task work area

If no more changes are to be made to your configuration member
select the following option:

 5. Save configuration member and return to main menu for CNFIGSSP

 Option:      5

 Cmd3-Previous menu        Cmd19-Cancel
```

28. Select option 5 to Save configuration member and return to the main menu for CNFIGSSP.

29. Press Enter.

    We are then returned to the initial CNFIGSSP MAIN MENU display 1.0.

Important CNFIGSSP Step

We have now changed a configuration member. SSP operates only from the master configuration record. Updating the master configuration record requires a dedicated (SSP) system environment. (The OS/400 operating system and users can remain active.)

When you are ready to enter dedicated operations on the SSP machine, continue with the following steps to apply the changes to the master configuration member.

30. Disable the ILAN connection to other SSPs or OS/400.

    To ensure that OS/400 users do not transfer to or pass-through into the SSP machine, you can disable the ILAN. In our example, the ICF configuration subsystem member defining our ILAN connection is ILANSBS as described in Chapter 4, “Internal Local Area Network” on page 75.

    Enter the following SSP command:

    ```
    DISABLE ILANSBS,,15
    ```

    Since we have modified the configuration member, we **must** apply the change to the master configuration record.

```
  1.0           CNFIGSSP  -  MAIN MENU                          W1

Select one of the following:
   1. How to use CNFIGSSP
   2. Create, change, or delete a configuration member
   3. Review a configuration
   4. Print a configuration

  10. Configuration support aids

  12. Apply change to the master configuration record
  13. Rebuild the master configuration record (update
      to next release)
  14. End CNFIGSSP

 Option:     12

 Cmd3-Previous menu
   Help text is available throughout the CNFIGSSP
   procedure by pressing the help key
```

31. Select option 12 to Apply change to the master configuration record.
32. Press Enter.

```
  3.0               CONFIGURATION MEMBER DEFINITION                    W1



 Member name. . . . . . . . . . . . . . . . . . . . . . . .   FAXCNFIG
 Library name . . . . . . . . . . . . . . . . . . . . . . .   #CNFGLIB

 Cmd3-Previous menu
```

33. Press Enter on the CONFIGURATION MEMBER DEFINITION display 3.0 to confirm that we want to change the master with this configuration member. In our example, we used Member name FAXCNFIG in library #CNFGLIB.

    Since we modified just the display station portion of the configuration member, we can just update that area.

```
 7.0          CNFIGSSP - CHANGE MASTER CONFIGURATION      FAXCNFIG   W1

 Specify area to be updated  . . . . . . . . . . . . . . . .     3
      1. Entire configuration
      2. Additional programming support
      3. Display stations and printers
      4. Base SSP values and system area sizes



    Cmd3-Previous menu
```

34. Select option 3 for Display stations and printers.
35. Press Enter.

```
Input-Output                                                          W1




 CNFIGSSP
 CNFIGSSP procedure is running
Do you want a printout of this configuration?
Reply--> N for NO, Y for YES.  N is the default
 Y
```

36. Select Y to obtain a printout of this configuration.
37. Press Enter.

    This is the last chance to have SSP users sign off, as option 12 (Apply change to master configuration record) requires a dedicated system. If you were to proceed with SSP tasks active, you would receive a message indicating you must end those tasks before proceeding. If tasks are active, you see a display similar to the following:

```
Complete                        STATUS SYSTASK                        W1
  TB@     DESCRIPTION       TB@     DESCRIPTION       TB@     DESCRIPTION
  000F00  0009-Cmd Proc     00C780  0019-Err Recov    00D840  00BF-APPC
  010280  00B5-C/SNA        01B500  0109-Cmd Proc


 Cmd7-End      Cmd8-Help     Cmd15-Update      Cmd16-Restart      Roll-Page
```

    Once you have completed cancelling any active jobs, ending subsystems or otherwise stopping system and user activity, you are able to proceed with a normal IPL.

    If you see the STATUS SYSTASK display at this point, press Cmd7 to end; end all jobs and tasks and you should then see the next display.

```
Input-Output                                                     W1




 CNFIGSSP
 CNFIGSSP procedure is running
Do you want a printout of this configuration?
Reply--> N for NO, Y for YES.  N is the default
 Y
System configuration complete
     Press the ENTER key in order to IPL from disk
```

    Follow the instructions on the display to initiate an IPL by pressing Enter.

    This completes modifying the SSP system to define a printer to be used for routing printed output between SSP and OS/400.

18.2.3 OS/400 Setup to Interface With SSP for Fax Output

For OS/400 to recognize SSP printed output, the OS/400 system's SSP machine configuration (*M36CFG object type) must map an OS/400 OUTQ to the SSP printer. In our example, we use an OUTQ to receive printed output from SSP. This enables the OS/400 operator to control what is intended for fax use.

Important Note

It is important to know that directing SSP output to an OUTQ is not required. The user can direct SSP output to an OS/400 defined printer ID. If a writer is active to the OS/400 device, the SSP output prints automatically if the output was not requested to be ″saved″ (with an attribute of save). It may disappear from the OUTQ and never be faxed out.

Printing automatically is what we want to avoid when faxing is desired.

For ease of managing fax traffic, it is suggested you define a separate OUTQ for fax. You may want to define two OUTQs, one for sending and one for receiving faxes.

Since the unit address is the link between the SSP configuration member and the OS/400 *M36CFG object, we define an OUTQ at an address that corresponds to the address we configured for the SSP machine using CNFIGSSP. This means we should define an OUTQ on port 6 address 6 in the SSP machine configuration object.

The following steps set up the SSP machine configuration object on OS/400.

1. Create an OUTQ to be used for faxed reports. In our example, we create one OUTQ called FAXOUT in library QGPL.

   ```
   CRTOUTQ OUTQ(QGPL/FAXOUT) TEXT('FAX SEND OUTPUT Q')
   ```

2. Press Enter.
3. Use the Change AS/400 Advanced 36 Machine Configuration (CHGM36CFG) command to modify the configuration object to be applied to the SSP machine that produces printed output for fax.

   In our example the SSP machine is named SSP1 and the SSP machine configuration object is named SSP1C. Both are stored in library SSP1.

   Type CHGM36CFG on the OS/400 command line and press F4 for prompting.

   The Change Machine Configuration display is shown.

   ```
                    Change Machine Configuration (CHGM36CFG)

   Type choices, press Enter.

   Machine configuration  . . . . . M36CFG       > SSP1C
     Library  . . . . . . . . . . .              >   SSP1



                                                                      Bottom
   F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
   F24=More keys
   ```

4. Fill in the name of the Machine configuration and associated Library. In our example, it is the machine configuration named SSP1C in library SSP1.
5. Press Enter to show additional parameters.

```
                    Change Machine Configuration (CHGM36CFG)

 Type choices, press Enter.

 Machine configuration  . . . . . M36CFG       > SSP1C
   Library  . . . . . . . . . . .              >   SSP1
 From machine . . . . . . . . . . FROMM36        *NONE
   Library  . . . . . . . . . . .
 From machine configuration . . . FROMM36CFG     ssp1c
   Library  . . . . . . . . . . .                  ssp1
 Text 'description' . . . . . . . TEXT           'M36 machine config for fax
                  '



                                                                      Bottom
 F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
 F24=More keys
```

6. Specify the From machine configuration you want applied to your SSP machine configuration object. In our example, it is also named SSP1C in library SSP1.
7. Press Enter.

   We now see the Change M36 Configuration display where we can start to map an OS/400 print device to the P6 SSP printer ID.

```
                            Change M36 Configuration

 M36 configuration  . :   SSP1C
   Library  . . . . . :     SSP1

 Select one of the following:

      1. Change M36 attributes
      2. Change M36 display and printer devices
      3. Change M36 display and printer device attributes
      4. Change M36 tape and optical devices
      5. Change M36 diskette devices
      6. Change M36 communication lines


 Selection
      2

 F3=Exit   F12=Cancel   F19=Validate configuration
 (C) COPYRIGHT IBM CORP. 1980, 1995.
```

8. Select option 2 to Change M36 display and printer devices.
9. Press Enter.

```
                        Chg M36 Display and Printer Dev

 M36 configuration  . :   SSP1C
   Library  . . . . . :     SSP1

 Type values, press Enter.

     M36            AS/400
 Work Station     Work Station
  Controller       Controller
      1            *DEV
      2
      3
      4


 F3=Exit   F4=Prompt   F5=Refresh   F10=Set defaults   F12=Cancel
 F21=Devices
```

   The Chg M36 Display and Printer Dev display asks us to choose the controller we want to work with. In our case, we are using device mapping so *DEV appears as the AS/400 workstation controller name.

If you are using controller mapping for the controller you want to map the SSP printer to, you see the controller name instead. Either device or controller mapping works.

10. Position the cursor under the *DEV or the AS/400 workstation controller you want to use for mapping the SSP printer to. In our case, it is M36 Workstation Controller 1 using *DEV mapping for the AS/400 workstation controller.
11. Press F21 to display the devices for the requested controller.

    We then see the Chg M36 Display and Printer Dev display where we can define the OS/400 device to map to printer ID P6 in SSP.

```
                         Chg M36 Display and Printer Dev

M36 configuration  . :   SSP1C           M36 controller . . . :   1
  Library  . . . . . :     SSP1          AS/400 controller  . :   *DEV

Enter the AS/400 device names you want attached to the M36 controller.

                                      Port
                                     Address
      0          1          2          3          4          5          6
0 DSP08____ ________ DSP10____ ________ ________ ________ PRT01____
1 DSP02____ ________ ________ ________ ________ ________ PRT02____
2 ________ ________ ________ ________ ________ ________ ________
3 ________ ________ ________ ________ ________ ________ ________
4 ________ ________ ________ ________ ________ ________ ________
5 ________ ________ ________ ________ ________ ________ ________
6 ________ ________ ________ ________ ________ ________ *OUTQ____
7 ________ ________ ________ ________ ________ ________ ________


Press Enter to continue.

F3=Exit   F12=Cancel
```

Figure 56. Changing M36 Configuration for SSP Spooling - SSP Port Address

Since our intent is to fax (not print) the selected SSP reports, we map SSP printer P6 to an OUTQ. We select an OUTQ that is not intended to be started to an OS/400 print writer. This helps avoid the SSP (and OS/400) reports printing automatically.

12. Type ***OUTQ** at the port and address that corresponds to the SSP configuration. In our example, this is port 6 address 6.
13. Press Enter which returns us to the Chg M36 Display and Printer Dev display.
14. Press Enter again to return to the Change M36 Configuration display.

```
                             Change M36 Configuration

M36 configuration  . :   SSP1C
  Library  . . . . . :     SSP1

Select one of the following:

     1. Change M36 attributes
     2. Change M36 display and printer devices
     3. Change M36 display and printer device attributes
     4. Change M36 tape and optical devices
     5. Change M36 diskette devices
     6. Change M36 communication lines


Selection
     3

F3=Exit   F12=Cancel   F19=Validate configuration
```

15. Select option 3 to Change M36 display and printer device attributes.
16. Press Enter.

    The Chg M36 Dsp and Prt Dev Attr display is shown.

```
                          Chg M36 Dsp and Prt Dev Attr

 M36 configuration  . :   SSP1C
   Library  . . . . . :     SSP1

 Type choices, press Enter.
   M36 controller . . . . . . . . . . . .   1              1-4




                                                                      Bottom
 F3=Exit   F12=Cancel
```

17. Choose the M36 controller number you want to change. In our example, this is M36 controller 1.
18. Press Enter.
19. On the Chg M36 Dsp and Prt Dev Attr display, select the M36 controller number you chose in the preceding step. In our example, it is M36 controller 1.
20. Press Enter.

    This brings us to the Chg M36 Dsp and Prt Dev Attr display where we define the OUTQ spooling attributes.

```
                          Chg M36 Dsp and Prt Dev Attr

 M36 configuration  . :   SSP1C           M36 controller . . . :   1
   Library  . . . . . :     SSP1          AS/400 controller  . :   *DEV

                   AS/400          Display M36
 Port     Addr     Device         signon at IPL     Spooling Attribute
  0        0       DSP08                Y_          *S36______________
  0        2       DSP10                N_          *S36______________
  0        6       PRT01                N_          *S36______________
  1        0       DSP02                Y_          *S36______________
  1        6       PRT02                N_          *DEV______________
  6        6       *OUTQ                N_          QGPL/FAXOUT_______


                                                                 Bottom
 F3=Exit   F5=Refresh   F12=Cancel
```

Figure 57. Changing M36 Configuration for SSP Spooling - Assigning OUTQ

    You should see an AS/400 Device defined as an *OUTQ with the port and address selected in the previous step. In our example, we see *OUTQ at port 6 with address 6.

21. Make sure the Display M36 Signon at IPL option is N for No as this device is not a display.

    OUTQ QPRINT in library QGPL is the default Spooling Attribute. This works but many OS/400 environments use OUTQ QPRINT for general system printed output and your operator may start a writer for QPRINT and your fax will ″disappear″! So be sure the ″Spooling Attribute″ is the OUTQ you use for faxing.

    In our example, we use the FAX OUTQ we created previously (QGPL/FAXOUT) in 1 on page 311.

22. Press Enter.

23. Press F3 to exit the Chg M36 Dsp and Prt Dev Attr display.

    This completes making the required configuration changes to OS/400 to support faxing from the SSP machine.

    Next, we want to save our changes.

```
                              Exit M36 Configuration

M36 configuration  . :   SSP1C
  Library  . . . . . :     SSP1

Type choices, press Enter.
  Option . . . . . . .   1              1=Save and exit
                                        2=Exit without save




F5=Refresh   F12=Cancel
```

24. Select option 1 to Save and exit from the Exit M36 Configuration display.

25. Press Enter.

    Any time a change is made to the SSP machine configuration object, it must be applied. Just as we needed to apply the configuration member to the SSP machine and re-IPL, we must apply the SSP machine configuration object to the SSP machine and re-start it.

    Use the following steps to apply the SSP machine configuration object changes with the SSP device mapped to an OUTQ for fax reports.

    As updating the master configuration record required a dedicated SSP machine, applying the configuration record requires that the SSP machine at an *Ended* status.

    Important Note for Shutting Down the SSP Machine

    Prior to ending the SSP machine, ensure SSP is shut down in an orderly fashion. Make sure you sign off as well (or the POWER OFF command will not complete).

    From the SSP command line, enter:

    - DISABLE ILANSBS (if ILAN is active)
    - STOP SYSTEM
    - POWER OFF
    - OFF

    The SSP machine should end normally.

26. You can check that the SSP machine has Ended by issuing the DSPM36 command; then select option 1 to Display M36 attributes.

```
Selection or command

===> dspm36 ssp1/ssp1

F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel   F13=Information Assistant
F23=Set initial menu
```

    SSP1 is the name of the SSP machine stored in ssp1 library.

```
                              Display M36 Attributes

  Machine  . . . . . . :   SSP1
    Library  . . . . . :     SSP1

  M36 status . . . . . . . . . . . . . :   Ended
  M36 SRC code . . . . . . . . . . . . :   00000000
  M36 Id . . . . . . . . . . . . . . . :   000
  M36 fixed disk size  . . . . . . . . :    200
  M36 auto-signon  . . . . . . . . . . :   *ENABLE
  M36 applied configuration  . . . . . :   SSP1C
    Library  . . . . . . . . . . . . . :     SSP1
  M36 server job . . . . . . . . . . . :   QM36000
    User . . . . . . . . . . . . . . . :     POWER
    Number . . . . . . . . . . . . . . :     000913
  IPL type . . . . . . . . . . . . . . :   *UNATTEND
  User profile . . . . . . . . . . . . :   QUSER
  Text description . . . . . . . . . . :
                                                                          Bottom
  Press Enter to continue.

  F3=Exit   F12=Cancel
```

The status of the selected machine should be Ended. ***Do not proceed until SSP machine "M36 status" is Ended.***

In almost all cases, the SSP sequence of STOP SYSTEM, POWER OFF, OFF previously described should be sufficient to end the SSP machine. If this does not complete successfully after a few minutes of waiting, you may issue the OS/400 ENDM36 command for your SSP M36 machine as shown in the following example.

```
  Selection or command

   ===> endm36 ssp1/ssp1_____________________________________________
  F3=Exit  F4=Prompt  F9=Retrieve   F12=Cancel  F13=Information Assistant
  F23=Set initial menu
```

Note: In some cases when using ENDM36, you may have problems re-enabling the ILAN connection between SSP and OS/400 after you have applied your SSP machine changes described in this chapter in the following steps. So, finish the steps in this chapter as fax support does not require ILAN to be active. If you have ILAN "connect problems" after applying the fax changes, refer to 4.4.5, "Possible Internal Local Area Network Problems" on page 114 for additonal assistance.

To apply the changes, we issue the STRM36 command and apply the changed configuration.

27. On the OS/400 command line, type STRM36 and press F4 for prompting.

```
                              Start Machine (STRM36)

  Type choices, press Enter.

  Machine  . . . . . . . . . . . . M36           ssp1
    Library  . . . . . . . . . . .                 ssp1
  IPL type . . . . . . . . . . . . IPLTYPE       *M36
  User profile . . . . . . . . . . USRPRF        power
  Apply configuration  . . . . . . APYM36CFG     ssp1c
    Library  . . . . . . . . . . .                 ssp1



                                                                          Bottom
  F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
  F24=More keys
```

28. Fill in the M36 machine you want to start and its associated library.

29. Type the M36 configuration and associated library that contain the changes made in the previous section.

    In our example, the SSP machine is SSP1/SSP1 and the SSP machine configuration object is SSP1C/SSP1. (Make sure you name an object in the APYM36CFG parameter for STRM36 after defining the *OUTQ device in the M36 object.)

30. Press Enter.

You are now finished with setting up the OS/400 environment to enable routing SSP printed reports to an OS/400 spooled output queue. Once you are on this OS/400 OUTQ, the report can be printed to OS/400 printer, sent to another system through ODF, or faxed.

Note: The setup completed so far can also be used to enable printer sharing between SSP and OS/400, such that System/36 printed output and OS/400 output are assigned the same OS/400 OUTQ and OS/400 is used to control printing. However, you may also choose to direct SSP output directly (non-spooled) to OS/400 printers or have SSP handle the printers independently from OS/400. You must ensure OS/400 SSP machine configuration object and SSP CNFIGSSP are defined appropriately.

The next topics show how to fax this output.

18.2.4 Faxing SSP Output on the OS/400 OUTQ

This section demonstrates the steps to direct printed output that originates in the SSP machine to a fax machine.

In our example, any printed output (spooled or not) that is directed to device P6 on the SSP machine is directed to the OS/400 OUTQ named FAXOUT.

1. Initiate any printed output on the SSP machine. Make sure it is directed to printer P6.

   You can direct SSP output to P6 either by using:

   - The SET command to override the selected printer for your session; or
   - Specifying DEVICE-P6 on the // PRINTER statement; or
   - Changing the spooled entry printer ID to P6 after the report is spooled and shown on the SSP D P - ″Spool File Status″ display.

   Note: Although our example is based on all SSP output directed to printer P6, you could also use the following // PRINTER OCL statement example to direct printer output for a *single SSP job* to an OS/400 OUTQ:

   ```
   // PRINTER NAME-$SYSLIST,OUTQ-QGPL/FAXOUT
   CATALOG ALL,F1
   ```

   When output is directed to device P6 (or OUTQ-QGPL/FAXOUT through the // PRINTER OCL statement) the SSP user does **not** see the entry when issuing the operator control command D P, as in the following display.

```
 Complete                    SPOOL FILE STATUS                                W1
                  BLOCKS AVAILABLE:  1790 OF   1800                 ---PAGES---
  POS SP-ID  PROC     JOBNAME  USER     PRINTER  ID PRTY FORM COPY  TOTAL   WRT

SYS-5701 Spool file is empty now  <---------------------------

  Cmd7-End      Cmd8-Help     Cmd15-Update      Cmd16-Restart      Roll-Page
 ------------------------------------------------------------------------------
                                   SPOOLJOB
                         Control printing (spool file)
    1. Display printer status           5. Change entries
    2. Cancel entries                   6. Copy or display entries
    3. Hold entries                     7. Control spool writer
    4. Release entries                  8. Restart spool writer

D P

 Ready for option number or command
```

The SSP spooled file is empty because device mapping routed any output directed to SSP device P6 over to (in our case) OUTQ QGPL/FAXOUT.

Because SSP has directed output to a ″phantom″ printer, and OS/400 has defined an *OUTQ at the port and address the phantom printer is defined for, the system directs the output to OS/400.

This also applies if SPOOL-NO is specified on the // PRINTER statement.

The following steps show how to use Facsimile Support for OS/400 to send out a fax of the print report generated from an SSP application.

Since Facsimile Support/400 is an OS/400 product, the user must issue OS/400 commands in any of the following ways:

- From an OS/400 workstation display *command entry* line.
- From an OS/400 display command entry line after passing-through from an SSP machine (PASSTHRU command).
- From an SSP job utilizing the SSP release 7.5 // RUN400 OCL statement.

  Note that if you have an SSP workstation session active **that was transferred from an OS/400 session through the TFRM36 command**, you have two ″advantages″ when issuing an OS/400 command through // RUN400:

  - Any printed output resulting from that command will have the OS/400 user profile assigned to it.
  - An OS/400 command or menu with interactive display output and input appears on the SSP workstation session display.

    Additional OS/400 commands and display options can be issued.

  If you issue the // RUN400 OCL statement from an SSP batch or EVOKEd job, a workstation originally *assigned* to the SSP through the OS/400 CRTM36CFG command, or an SSP workstation job started through OS/400 STRPASTHR command, the // RUN400 command runs on OS/400 in batch mode (non-interactive). Command output is placed in an OS/400 spool file - **not returned directly to the SSP job.**. This means, to see any output from the OS/400 command, you must sign on to the OS/400 machine. OS/400 spooled output as a result of this ″batch mode″ processing runs under SSP jobs running under subsystem QSYSWRK. The OS/400 user profile associated with any of this output is the one specified through the OS/400 STRM36 command used to start the SSP machine.

See 3.2.2, “SSP User // RUN400 OCL Statement Examples” on page 67 for more information on // RUN400.

In our example, we choose to pass-through to OS/400 using the PASSTHRU SSP command.

2. Type the following SSP command statement and press Enter:

```
PASSTHRU IM436M06
```

where IM436M06 is the Remote location name of our OS/400 machine.

3. Sign on to OS/400 if necessary.
4. Once you are on an OS/400 command line, enter the fax environment by requesting the FAX menu as shown in the following display:

```
Selection or command
===> go fax

F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel   F13=Information Assistant
F23=Set initial menu
```

5. Press Enter.

This brings up the Facsimile Support for OS/400 main menu.

```
FAX                     Facsimile Support for OS/400
                                                          System:   IM436M06
Select one of the following:

     1. Administration
     2. Fax Profiles
     3. Fax Master List
     4. Fax Distribution List
     5. Outbound Fax Commands
     6. Inbound Fax Commands
     7. Fax User Menu


Selection or command

===> 5

F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel   F13=Information Assistant
F16=System main menu
```

6. Select option 5 to proceed to the Outbound Fax Commands menu.
7. Press Enter.

```
FAXOUT                    Outbound Fax Commands
                                                          System:   IM436M06
Select one of the following:

     1. Work with Fax Output Queue
     2. Work with Fax File Attributes
     3. Change Fax File Attributes
     4. Delete Fax File
     5. Send Fax

  Enhanced Services:

    21. Create Fax Note
    22. Check Fax Status
    23. Print Fax Status
    24. Submit Fax

Selection or command

===>

F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel   F13=Information Assistant
F16=System main menu
```

We can use options from this menu to send or submit faxes using options 5 and 24 respectively, but we are then prompted for the spooled file attributes and print file names of the report to be faxed. Do not select these options yet as we first want to show a ″more friendly″ way to send the fax.

The user-friendly method assumes that Enhanced Services has been previously configured with the CFGFAXSRV command as we recommend in this redbook since we use a command available in Facsimile Support/400 when Enhanced Services is started.

Enhanced Services also has to be selected when starting Facsimile Support by specifying ENHSRV(*YES) as shown in the following example:

```
STRFAXSPT ENHSRV(*YES)
```

Note: For further information on the CFGFAXSRV command and to configure the Enhanced Services portion of the Facsimile Support for OS/400 product, refer to the *Facsimile Support for OS/400 Installation Guide*, SC41-0570.

8. From the Outbound Fax Commands menu, select option 1 to Work with Fax Output Queue (WRKFAXQ).

   Optionally, we can also enter the WRKFAXQ command on the OS/400 command line as follows:

   ```
   WRKFAXQ OUTQ(qgpl/faxout) SELECT(POWER)
   ```

   Press F4 to receive command prompting.

   Using either interface, we are presented with the Work with Fax Output Queue (WRKFAXQ) prompt display as follows:

   ```
                        Work with Fax Output Queue (WRKFAXQ)

   Type choices, press Enter.

   Output queue . . . . . . . . . . OUTQ          faxout
     Library  . . . . . . . . . . .                 qgpl
   Select files for:               SELECT
     User . . . . . . . . . . . . .                power
     User data  . . . . . . . . . .                *ALL



                                                                        Bottom
   F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
   F24=More keys
   ```

9. Enter the options for the users requested, if desired.

   You may need to specify the user to select files for.

   The display defaults to USER(*CURRENT); that is the user ID requesting the Work with Fax Output Queue command.

   Note: Remember that any spooled files originating on the SSP side will have the OS/400 signed on user ID if TFRM36 was issued to start a session with SSP, or if TFRM36 was not used will have the OS/400 user ID assigned to the running SSP machine through the STRM36 or CRTM36CFG command.

   Unless a user profile is explicitly specified, the default for CRTM36CFG and STRM36 is QUSER. Earlier in this section, we used OS/400 user ID profile POWER. In the following examples, we did not use TFRM36 to start a session with SSP but we issued STRM36 with POWER as the user profile.

   Note: OS/400 profile QUSER has minimal authority to OS/400 functions. QUSER is good when first starting to use OS/400. However, in an OS/400 application production environment the customer should consider creating a

unique OS/400 user profile when using the // RUN400 OCL statement. It is also easier to track and monitor jobs when unique user IDs are utilized.

10. Press Enter.

    We then see the spooled file entries for the reports the SSP user directed to printer P6 which ended up on the FAXOUT OUTQ.

```
                          Work with Fax Output Queue

Queue:   FAXOUT          Library:   QGPL

Type options, press Enter.

  1=Submit fax   3=Hold   4=Delete   5=Display   6=Release

Opt  File          FNbr  Job         User        Number  User Data

__   QPFFCFG          1  DSP01       POWER       000700
__   QSYSPRT          4  DSP01       POWER       000700
_1   REPORT          11  QNURHMED    POWER       000867  PURCHORD
__   $SYSLIST        12  QNURHMED    POWER       000867  CATALOG
__   PRINTKEY        14  QNURHMED    POWER       000867  $PRINTKEY


Parameters or command                                          Bottom
===>
F3=Exit      F4=Prompt     F5=Refresh   F9=Retrieve   F12=Cancel   F17=Top
F18=Bottom   F20=QFAXOPR   F22=Printers
(C) COPYRIGHT IBM CORP. 1991, 1995.
```

    The first two files to be faxed (QPFFCFG and QSYSPRT) were generated by OS/400 programs or commands.

    The job name associated with spooled reports originating in SSP have the user profile of that assigned to the SSP machine or an interactive OS/400 user profile if TFRM36 was used. The batch default QUSER is not shown here. QNURHMED, as discussed in Chapter 3, “AS/400 Advanced 36 Configuration Example” on page 23, is assigned as the Job name.

    Note:

    You can also see this display if you use the OS/400 WRKSPLF SELECT(POWER) command interface.

```
Selection or command
===> wrksplf power

F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel   F13=Information Assistant
F16=System main menu
```

    Enter the OUTQ the printed output was directed to. In our example, it is named FAXOUT (which we created earlier in this chapter at 1 on page 311).

11. Select option 1 next to the file you want to fax. This initiates a SBMFAX request.

12. Press Enter.

    The Submit Fax display is shown.

```
                                  Submit Fax

 Fax request type  . . . . : *SPLEXIST, fax an existing spooled file
 Description . . . . . . . :

 Type distribution list or destinations, press F10 to send.
 Distribution list  . . . . . . . ________________              F4 for list

 Destination Name                Identifier/Entry


 ____________________________
 ____________________________
 ____________________________
 ____________________________
 ____________________________                                          More...
 F3=Exit   F4=Prompt   F5=Refresh   F10=Send
 F11=View 2            F12=Cancel   F24=More Keys
 (C) COPYRIGHT IBM CORP. 1995
```

13. If the report is to be faxed to a destination commonly used by your company, a Destination Name or Distribution may exist. Press F4 with the cursor on either ″Distribution list″ or ″Destination Name″ to see a list of stored distribution entries. If one already exists, select it. Then press F10 to Send the output to a fax.

    Since the example used in this chapter is an ″ad hoc″ for first time sending of SSP output as a fax, we enter a name not in any predefined list distribution name list. Therefore, proceed to the next step.

14. Enter a name (for example, ABC WAREHOUSE, INC) you might refer to as the recipient of the fax under Destination Name. This value does not match an entry in the fax master list.

```
 Fax request type  . . . . : *SPLEXIST, fax an existing spooled file
 Description . . . . . . . :

 Type distribution list or destinations, press F10 to send.
 Distribution list  . . . . . . . ________________              F4 for list
 Destination Name                Identifier/Entry
 ABC WAREHOUSE INC_____
 ______________________
 ______________________
 ______________________                                                More...



 F3=Exit   F4=Prompt   F5=Refresh   F10=Send
 F11=View 2            F12=Cancel   F24=More Keys
```

15. Press F10 to Send the report to a fax machine.

    Since the system cannot find an entry for the Destination Name you requested, the system issues the message FRQ8920 Destination could not be found. As the message help text indicates, if the destination is a temporary one, you can consider this ″normal″ - the message is informational and FRQ8920 can be disregarded.

16. Press F10 again.

    We are then asked to Complete Destination Information for the site where the fax is to be sent.

```
                                   Submit Fax

 Fax request type  . . . . : *SPLEXIST, fax an existing spooled file
 Description . . . . . . . :
 ..........................................................................
 :                      Complete Destination Information                  :
 :                                                                        :
 : Type choices, press Enter.                                             :
 :                                                                        :
 :  Destination name . . . . . . . ABC WAREHOUSE, INC                    :
 :  Identifier . . . . . . . . . . SHOE STORAGE                           :
 :  Entry  . . . . . . . . . . . . INVOICING                              :
 :  Contact  . . . . . . . . . . . shelma lou                             :
 :  Fax number . . . . . . . . . . 34567                                  :
 :                                                                        :
 : F12=Cancel                                                             :
 : Fax number cannot be all blanks.                                       :
 :........................................................................:
                                                                     More...
 F3=Exit   F4=Prompt   F5=Refresh   F10=Send
 F11=View 2            F12=Cancel   F24=More Keys
```

You can consider most of the prompts on the Complete Destination Information display as information for tracking or delivery purposes only. They are useful when checking the status of the fax you are sending, but they do **not** relate to any fields in any database file. They are ″free-key″ fields.

You may want, however, to think of:

- Destination name as the company name to receive the fax.
- Identifier as the department, department number or perhaps the customer number.
- Entry as title of the recipient or directions for the person delivering the fax.
- Contact as the name of the person to deliver the fax to.

The *fax number* must be correct as it is the actual phone number of the fax machine that is to receive your report.

Note: The format of the phone number is specific to your location and country specific telephone system requirements, the modem used, the country you are in, the country you are calling, and other factors. Generally entering either the phone number without slashes (/) or dashes (-), or other preceding special characters should work. Depending on your telephone installation, you may or may not need to precede the phone number with a 9.

One of the following formats for a telephone number works in most cases:

Table 24 (Page 1 of 2). Send Fax Telephone Numbers Example Parameters

Number Example	Description
34567	Used for dialing an extension in your business establishment (3-4567).
1234567	Used for dialing a local number where an outside line is not required (123-4567).
91234567	Used for dialing a local number where an outside line is required (9-123-4567).
915071234567	Used for dialing a long distance number where 507 is the U.S. Area Code (9-1-507-123-4567).

Table 24 (Page 2 of 2). Send Fax Telephone Numbers Example Parameters	
Number Example	**Description**
9011countrycode citycode1234567	No blanks between character sequences. Used for dialing outside the US long distance where ″countrycode″ is 2 to 3 digits, ″citycode″ is 1 to 2 digits, and the specific phone number is 6 to 7 digits. In the U.S., ″011″ indicates an international call is being made.

17. Press Enter.

    You should then receive a message indicating that a Fax request has been made to the company you specified in the Destination name.

    This actually puts the ″send fax″ function into a sequence of processing steps that includes conversion of the spooled file into a transmittable format, dialing the fax machine telephone number, and sending the fax. To determine that the fax has actually been transmitted, you must go through the following steps.

    Note: If you re-entered any of the requested information, you may have to press F10 to initiate the send fax request again. You are prompted to do this.

18. Press F3 until you return to the Outbound Fax Commands menu.

    You should now check on the status or progress of your fax request.

```
FAXOUT                      Outbound Fax Commands          System:   IM436M06

 Select one of the following:

      1. Work with Fax Output Queue
      2. Work with Fax File Attributes
      3. Change Fax File Attributes
      4. Delete Fax File
      5. Send Fax

   Enhanced Services:

     21. Create Fax Note
     22. Check Fax Status
     23. Print Fax Status
     24. Submit Fax

 Selection or command
 ===> 22

 F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel   F13=Information Assistant
 F16=System main menu
```

19. Select option 22 from the Outbound Fax Commands menu to Check Fax Status.
20. Press Enter.

    The Check Fax Status (CHKFAXSTS command) display is shown.

```
                        Check Fax Status (CHKFAXSTS)

 Type choices, press Enter.

 Fax status for user  . . . . . . USER          *CURRENT
 Send date  . . . . . . . . . . . SNDDATE       *ALL
 Send time  . . . . . . . . . . . SNDTIME       *ALL
 Destination  . . . . . . . . . . DEST          *ALL

 Identifier . . . . . . . . . . . ID            *ALL

 Entry  . . . . . . . . . . . . . ENTRY         *ALL

 Description  . . . . . . . . . . TEXT          *ALL

 Log entry type . . . . . . . . . LOG           *ALL
 Allow fax status reset . . . . . RESET         *NO
 Allow user name to be changed  . CHGUSR        *NO
                                                                      Bottom
 F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
 F24=More keys
```

Consider the following when specifying a value for the USER keyword:

Select USER(*CURRENT) to check on faxes submitted with the OS/400 user profile you are presently signed on to OS/400 as.

Select POWER for those originating from the SSP machine.

QUSER is the default AS/400 user profile when defining an SSP machine. If you created a unique OS/400 user profile for the SSP machine that was active when the SSP application placed the printed report on the OS/400 output queue, specify that user profile name, not QUSER.

Select *ALL for all fax requests.

You may further qualify what fax status you want to see by changing the Send date and Send time or any other parameters on the Check Fax Status display.

21. Press Enter.

    We then see a list of any of the outbound faxes meeting the criteria from the selection display in the preceding step.

    This is where Destination Name appears as you typed it on the Submit Fax display.

22. Select option 5 in front of the Destination Name to Work with status for that entry.

```
 User  . . . . : POWER

 Type option, press Enter.
   4=Remove          5=Work with status          8=Reset status
   9=Resend fax     12=Display fax

                                          Scheduled
 Opt   Destination Name               Date        Time      Status

 __    DB Ticket Services             04/12/96    10:59:11  Finished
 _5    ABC WAREHOUSE, INC             04/22/96    11:16:43  Finished
 __    JOJO Phone Services            04/12/96    11:16:22  Error occurred




  F3=Exit      F4=Prompt    F5=Refresh   F6=Print   F10=Display Messages
  F11=View 2   F12=Cancel   F24=More Keys
(C) COPYRIGHT IBM CORP, 1994
```

23. Press Enter to see the Work with Status Entries display.

```
                          Work with Status Entries

User . . . . . . . . . . :  QUSER
Option . . . . . . . . . :  *SPLEXIST, fax an existing spooled file
Destination  . . . . . . :  ABC WAREHOUSE
Fax number . . . . . . . :  36408
Status . . . . . . . . . :  Finished
   Details . . . . . . . :  Transmitted successfully
Fax Description  . . . . :  FAXD01 slot/port FAX1
Spooled file . . . . . . :  $SYSLIST number 0002
   Job . . . . . . . . . :  001415/POWER/QNURHMED
   Status  . . . . . . . :  *READY
   Output queue  . . . . :  QUSRSYS/QFFSNDSAV
Connection time  . . . . :  00:01:05
Sent pages . . . . . . . :         2
Type option, press Enter.
  8=Display Details
Opt    Log Type           Message Text
__     *GENERATE          No errors.  Sending existing spooled file.
__     *SNDFAX            No errors occurred during the SNDFAX command.
8_     *COMPLETION        Finished

F3=Exit   F5=Refresh   F12=Cancel
```

This is an example of the Fax status entry where the distribution for user POWER has finished - status **Finished** and status detail **Transmitted successfully**.

A ″Log Type″ entry of *GENERATE indicates the spooled file is being converted to the required fax data stream. A Log Type entry of *SNDFAX means the connection has been made and the fax is being sent. Depending on the number of pages being sent and the communication line speed, this *SNDFAX status could appear for a few minutes.

The Log Type entry *COMPLETION and Message Text ″Finished″ indicates a successful transmission. An entry of *COMPLETION and Message Text of ″Errors occurred″ requires more investigation.

We can use the Display Log Details option (8) to see more details for the Log Type value. In our case, we have received notification that the fax process was complete and will see this detail information in the next step.

If you forgot to vary on the fax controller description or forgot to start Facsimile Support/400, you may see a status of *SNDFAX-Sending ″forever″!

24. Enter an 8 to display the status details. The following is an example of a successful transmission detail status.

```
                             Display Log Details

Message ID . . : FAXC104                  Log type . . . : *COMPLETION
Severity . . . : 00
First Level Text
 Message . . . . :   Fax transmission to telephone number 69090
   completed successfully.
Second level Text
 Cause . . . . . :   The spooled file $SYSLIST number 0002 from job
   001415/POWER/QNURHMED has been successfully sent to the remote fax
   device at telephone number 69090.
 Recovery  . . . :   None.
 Technical description  . . . :  Fax controller module I.D. is
   X'02000000'.

                                                                    Bottom
F3=Exit   F12=Cancel
```

18.2.5 Tips for Success

The following tips are provided for sending faxes generated by an SSP application.

- Facsimile Support/400 must be started and the Fax Adapter hardware control unit and device descriptions must have been varied on and in ″active″ status for a fax to be sent or received.

  The following is an example of Start Fax Support with Enhanced Services:

  ```
  STRFAXSPT FAXD(FAXD01) ENHSRV(*YES)
  ```

  You can verify the FAX hardware is varied on and active by issuing the OS/400 WRKCFGSTS command specifying *CTL and the starting prefix for the controller and device names. In the following example, we used ″FAX*″:

  ```
                          Work with Configuration Status                IM436M06

                                                                 04/22/96  14:45:47
  Position to  . . . . .  ___________  Starting characters

  Type options, press Enter.
    1=Vary on   2=Vary off   5=Work with job   8=Work with description
    9=Display mode status ...

  Opt  Description       Status                -------------Job--------------
  __   FAXD01            ACTIVE
  __     FAXCTL01        ACTIVE
  __       QFAXMODE      ACTIVE/SOURCE         FAXSND01P   POWER       001881
  __       QFAXMODE      ACTIVE/SOURCE         FAXCTL01    POWER       001877
  __     FAXSND01C       ACTIVE
  __       QSPWTR        ACTIVE/SOURCE         FAXSND01P   QSPLJOB     001884
  __     FAXRCV01        ACTIVE
  __       QFAXMODE      ACTIVE/SOURCE         FAXRCV01    POWER       001882

                                                                          Bottom
  Parameters or command
  ===>_____________________________________________________________________
  F3=Exit   F4=Prompt   F12=Cancel   F23=More options   F24=More keys
  ```

  Prior to any attempt to send a fax, the fax controllers and devices show a status of **active** and no jobs are listed under the heading ″---------- Job ----------″. The display used here was taken when a SNDFAX was in progress, as you can see by the presence of Facsimile Support/400 jobs.

- If you want to print the SSP application report through SSP, you must ensure the assigned SSP printer is not assigned to an OS/400 OUTQ.

  This is normal SSP spooled support.

- If you want to print the SSP application report through SSP and then let Facsimile Support for OS/400 send it with fax, you must first assign a printer owned by SSP. Then, after the SSP printing has completed, you may reassign the SSP file to a printer device that has been assigned to an OS/400 OUTQ.

- After you modify an *M36CFG object to specify that an SSP printer uses an OS/400 Output queue (OUTQ), you must specify that *M36CFG object name and library in the STRM36 command APYM36CFG parameter the next time you start that SSP machine.

- If an OS/400 OUTQ is defined for the local printer unit address corresponding to an SSP configuration, any SSP print output to that SSP printer ID goes directly to the named OS/400 output queue and is printed if an OS/400 spooled writer is already started to that queue.

  If you want to have the output remain on the OS/400 OUTQ, ensure there is no print writer started to that queue.

- SSP Display Spooled output queue (D P command) will not show SSP output if the printer output was assigned to a printer that is assigned to an OS/400 OUTQ.

  This output shows up only through OS/400 commands, such as Work with Output Queue (WRKOUTQ) command or Work with Spooled File (WRKSPLF) command, **unless the SSP print device is specified as HELD.** In this case, the SSP D P command displays the spooled output. If the printer is released, the output is immediately placed on the OS/400 output queue and the next SSP D P command shows ″Spooled file is empty now″.

- In order to use the OS/400 SNDFAX command (either from the Outbound Fax Commands menu or using the CL command), you need to know the print file name, print file number (assigned by OS/400) for each spooled file placed on an OUTQ, and the complete job name of the job that produced the print file. See a portion of the OS/400 SNDFAX command in Figure 58.

  These are the parameters that you use on either the SNDFAX or SBMFAX commands **if Enhanced Services is not used.**

```
                                Send Fax (SNDFAX)

 Type choices, press Enter.
 Send to:
   Telephone number . . . . . . .
   To line 1 for cover page . . .   *BLANK
   To line 2 for cover page . . .   *BLANK
   To line 3 for cover page . . .   *BLANK
                + for more values
 Spooled file . . . . . . . . . .   _________     Name
 Job name . . . . . . . . . . . .   *________     Name, *
   User . . . . . . . . . . . . .   _________     Name
   Number . . . . . . . . . . . .   _________     000000-999999
 Spooled file number  . . . . . .   *ONLY_____    1-9999, *ONLY, *LAST
 Transmission mode  . . . . . . .   *FINE         *FINE, *NORMAL
 Create cover page  . . . . . . .   *NO           *NO, *YES
                                                                      Bottom
 F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cancel
 F13=How to use this display        F24=More keys
 Parameter TO required.                                                  +
```

Figure 58. Facsimile Support for OS/400 Environment

The following shows an example of determining this OS/400 information from the OS/400 Work with Spooled File (WRKSPLF) command where we are specifically looking for output produced by one of the OS/400 SSP machine server jobs starting with ″QNURHccc″.

```
                          Work with All Spooled Files

 Type options, press Enter.
   1=Send   2=Change   3=Hold   4=Delete   5=Display   6=Release   7=Messages
   8=Attributes        9=Work with printing status
                  File
 Opt  File        Nbr   Job         User        Number  Queue       Library
                                      1
 __   $SYSLIST      14  QNURHMED    QUSER       000867  FAXOUT      QGPL
                                      2
 __   $SYSLIST       1  QNURHMED    POWER       001415  FAXOUT      QGPL
                                      2
 __   $SYSLIST       2  QNURHMED    POWER       001415  FAXOUT      QGPL



                                                                        More...
 Parameters for options 1, 2, 3 or command
 ===>_____________________________________________________________

 F3=Exit   F10=View 2   F11=View 1   F12=Cancel   F22=Printers   F24=More keys
```

In this example, all $SYSLIST files were printed in an SSP machine. The first entry shown for OS/400 file number 14 (**1**) was produced when the SSP machine that was running was started (STRM36 command) with the default user profile QUSER. For OS/400 $SYSLIST spooled file number 1 and number 2 (**2**), the SSP machine that was running was started with a specific user profile POWER.

Refer to Figure 35 on page 61 for more information on the OS/400 SSP machine server jobs.

Appendix A. Model 436 Performance Management Overview

A complete analysis of performance management when running SSP and OS/400 on the same Model 436 is beyond the scope of this redbook. However, this appendix contains some general performance considerations that may prove valuable for a specific customer environment. The information is primarily useful to an AS/400 performance expert that may be requested to analyze performance and do capacity planing if significant OS/400 application work is added to active SSP applications.

In general, the SSP applications run much faster than they did on a ″heritage System/36″. However, should the SSP applications need some performance review, remember that the SSP System Measurement Facility (SMF) continues to run on the Model 436 just as it does on a heritage System/36. SMF reports such things as:

- Locking conflicts
- OCL statements processed
- File opens and closes
- CPU usage rates

The following are operating environment tips for SSP:

- Avoid running batch jobs during periods of high interactive usage.

  Move the batch jobs to ″off peak″ time periods. The DSPSYS command dynamically displays the three highest CPU jobs currently running.

- If SSP IPLs appear to be taking ″longer″, consider reorganizing files or performing keysorts before powering off the SSP.

- When running both SSP and OS/400 applications concurrently, try setting the OS/400 QPFRADJ system value to 3 until you get a stable performance environment. Then set QPFRADJ back to 0 (off).

  OS/400 provides machine storage tuning analysis continuously when the system value QPFRADJ is set to a value other than 0. This tuning usually results in establishing appropriate storage sizes for OS/400 storage pools for customers who are not familiar with OS/400 work management and performance details.

- Within SSP, use SMF to analyze if additional main storage or disk arms (DASD) may improve performance. SMF can show if DASD usage is high. If DASD use is high and the User Area Disk Activity (UADA) count is also high, more main storage may improve performance.

  Some general guidelines for CPU, DASD, and UADA values are listed in the following table. When SMF shows values above these guidelines, it is time to consider upgrading the resource identified. Note that SSP has no ″capacity planning tool″.

Table 25. SMF Guideline Values

Performance Metric	Warning Value	Action Value
CPU Utilization	90%	95%
DASD Arm Utilization	60%	80%
UADA Swapping Count	<15	>20

Note:

While other SMF values may also indicate performance problems, the three values listed here are the primary System/36 values that still apply on the Model 436. A Warning Value should cause action to be taken **before** a value reaches the Action Value.

- CPU Utilization on the Model 436:

  A value above 90% when only SSP is active continues to deliver acceptable response times. Above 95%, response time increases dramatically.

  However, when significant OS/400 **interactive work** and SSP **interactive work** are running at the same time, the AS/400 guideline (″Action Value″) of 70% CPU utilization for interactive work is recommended. You need to run the OS/400 Performance Monitor (STRPFRMON command) to collect the performance data. Performance Tools/400 printed reports are recommended for analyzing the performance data.

- DASD Arm Utilization on the Model 436:

  Use SMF 60% arm utilization′s as an indicator that action should be taken, such as adding a disk arm. When multiple disk arms are in use, it is recommended the utilization for each arm be within 10% to 15% of each other.

  However, when significant OS/400 **interactive work** and SSP **interactive work** are running at the same time, the AS/400 guideline (″Action Value″) of 40% disk arm utilization is recommended.

- UADA Swapping Counts on the Model 436:

  UADA is the sum of SMF counts for ″Swaps-Out″, ″Swaps -In″, and ″Translated Transfer Loads″.

  With SSP only work, a value less than 20 delivers good performance. There may be situations where UADA counts exceed 20 and performance is acceptable. However, if UADA values are consistently above 20, adding more main storage is recommended.

  However, when significant OS/400 **interactive work** and SSP **interactive work** are running at the same time, the AS/400 *page fault guidelines* should be used. The guideline values are dependent on the processor speed so further discussion is beyond the scope of this redbook. Refer to the *AS/400 Work Management Guide*, SC41-4306, for information on these guidelines.

A.1 OS/400 Performance Overview

OS/400 has the same ″performance metrics″ as SSP - CPU utilization, DASD activity, main storage usage, and job priority. However, OS/400 has many more parameter settings in each of these areas than was possible under SSP. In order to run SSP, the AS/400 system has established *defaults* that enable SSP applications to achieve very good performance with minimal understanding of OS/400 work management and performance ″options″.

The remainder of this topic presents a list of hints that may be used to evaluate performance, change some default values, and do some capacity planning when running both SSP and OS/400 applications at the same time.

- OS/400 and the AS/400 System Licensed Internal Code (SLIC) actually run both OS/400 work and the SSP machine work on the Model 436.

  Therefore, a person familiar with OS/400 job priority, main storage (pool) management, OS/400 Work with xxxxx Status commands, the OS/400 Performance Monitor, and the Performance Tools/400 licensed program (5716-PT1) can manage, measure, and do some capacity planning of a Model 436 that runs both SSP and OS/400.

- Use the information provided in this redbook regarding OS/400 subsystem QSYSWRK jobs that perform // RUN400 OCL statement functions and place assigned SSP printed output onto an OS/400 spooled output queue.

  For a single active SSP, there is job QM36nnn and at least 2 sets of three related jobs - QNURHGH, QNURHMED, and QNURHLOW. By the default definition of *routing entries* in OS/400 subsystem QSYSWRK, these jobs run at the following OS/400 run priorities (lower priority number means high priority, high priority number means low priority; for example, priority 20 is much higher than priority 50):

  – QM36nnn - priority 50

  – QNURHHGH - priority 10

  – QNURHMED- priority 20

  – QNURHLOW - priority 50

  In most cases, these default priorities provide effective performance. If you want to change these priorities (and the storage pool these jobs run in), refer to the Appendix ″Performance Considerations″ in the *Advanced 36 Operator Tasks - Multiple Operating Systems*, SC21-8384.

- The QM36nnn and QNURHccc job priorities are impacted by and impact the run priorities of other OS/400 applications jobs.

  For example, priority 20 is the normal default for a normal interactive job on OS/400. Presuming no one has changed this default interactive priority, normal OS/400 applications run at the same priority as ″medium priority″ SSP work (QNURHMED routing entry).

  This also means that heavy OS/400 interactive work would slow down any priority 50 work, such as OS/400 batch jobs and SSP ″low priority″ work (QNURHLOW routing entry).

- AS/400 System Licensed Internal Code performs the emulation of the SSP work.

  The SLIC tasks that do work on behalf of the QM36nnn and QNURNccc job runs run at similar priorities as the QM36nnn or QNURHccc job that requested the work. The SLIC SSP emulation tasks, such as for ″SSP System Functions″ associated with the Work Station Controller and Disk tasks, run at other, internally specified priorities along with other SLIC tasks that perform normal OS/400 functions.

- An experienced AS/400 user can change the default run priority of the QM36nnn and QNURHccc jobs to change performance results at the expense of any other system or application work going on.

  Once you start changing the SSP work run priority and storage pool assignment, you may need a skilled OS/400 performance expert to ensure that the speeding up of one set of work does not cause unacceptable performance for other jobs.

- The OS/400 Performance Monitor can be started and stopped while SSP and OS/400 are active.

  The monitor data is collected and stored in database files that have the QAPMxxxx prefix. This data can be analyzed by user-written AS/400 queries or through the Performance Tools/400 licensed program.

  SSP work can be grouped by the QM36nnn, QNURHccc job names, and SLIC task names that begin with the prefix 36nnncccc, where nnn is the SSP machine id assigned by OS/400 at the time the SSP machine was created by CRTM36. You can use WRKM36 to determine the SSP machine ID and use this nnn ID to group all OS/400 job and LIC task CPU and disk resource utilization for a specific SSP machine. These job and task names are found on the Performance Tools/400 Component Report.

- By grouping the QM36nnn, QNURHccc, and 36nnncccc work, you can identify CPU utilization, DASD activity, and main storage pool utilization for performance measurement.

  You may also use this work grouping for building a Performance Tools/400 BEST/1 *workload* to be used for capacity planning purposes. This is especially useful if you plan on adding more workstations doing SSP application work or add new AS/400-based applications to existing SSP application work.

- The AS/400 system has performance guidelines for CPU utilization, DASD arm busy utilization, main storage pool faults per second, and other performance metrics.

  Refer to Figure 59 on page 335 for the AS/400 resource utilization guideline (″Warning value″) and threshold (″Action value″) values. Note that communication line utilization values are for interactive work. For batch environments, a communication line utilization as close to 100% as possible is recommended.

```
                                          Guideline        Threshold
CPU util . . . . . . . . . . . . . . .    70               80
Disk IOP util  . . . . . . . . . . . .    70               80
Disk arm util  . . . . . . . . . . . .    40               50
Communications IOP util  . . . . . . .    45               50
Communications line util . . . . . . .    35               40
Local WS controller util . . . . . . .    35               40
LAN controller util  . . . . . . . . .    40               50
WAN WS controller util . . . . . . . .    40               50

See the AS/400 Work Management Guide for main storage
pool page fault guideline values. The values shown here are from
the Performance Tools/400 BEST/1 Analysis Parameters - Edit
Utilization Guidelines menu.
```

Figure 59. AS/400 Resource Utilization Guideline Values

- As with all guideline values, you should first evaluate if performance is acceptable before taking action if guideline (SSP Warning value) and threshold (SSP Action value) are exceeded.

  If performance is acceptable and values are above the guideline or threshold values, then system performance should be monitored, but there may not be a need to take action if no significant workload is to be added or ″poor performance for a short period of time″ can be tolerated.

  On the other hand, performance measurement values (metrics) for resources may, on average, be below guideline/threshold values and performance may no longer be acceptable for peak periods of activity. In this case, you must investigate the causes of poor performance, such as ″object lock wait″ times, regardless of the resource utilization value recorded as an average over a time period.

Appendix B. Special Notices

This publication is intended to help set up and configure an AS/400 Advanced 36 Model 436 for co-resident SSP and OS/400 applications. The information in this publication is not intended as the specification of any programming interfaces.

See the PUBLICATIONS section of the *AS/400 Advanced 36 Planning and Reference Handbook* or the IBM Programming Announcement for Advanced 36 Licensed Programs for Release 7.5 for more information about what publications are considered to be product documentation.

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Appendix C. Related Publications

The publications listed in this section are considered particularly suitable for a more detailed discussion of the topics covered in this redbook.

C.1 International Technical Support Organization Publications

For information on ordering these ITSO publications see “How To Get ITSO Redbooks” on page 341.

To order this specific redbook, you must specify order number SG24-4559.

The AS/400 redbooks only CD-ROM order numbers are:

- Upgrade from CD-ROM subscription feature 8553 to **8502**, $195 (US) price
- Single copy CD-ROM: **SK2T-2849**, $250 (U.S.) price

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A complete list of International Technical Support Organization publications, known as redbooks, with a brief description of each, may be found in:

International Technical Support Organization Bibliography of Redbooks, GG24-3070.

C.2 Other Publications

These publications are also relevant as further information sources.

Refer to Chapter 2, “Overview of Advanced 36 Installation Tasks” on page 13 or the *AS/400 Advanced 36 Planning and Reference Handbook* , SA21-965, for a list of related publications.

Three very useful Advanced 36 manuals relating to coexistence are:

- *Advanced 36 General Information for SSP Operating System*, SC41-8299-01 or later.

  This manual discusses new for SSP Release 7.5 OCL and Procedure support, such as system value support, // PRINTER statement parameters, defining

and controlling display and printer devices between SSP and OS/400, and many more important topics.

- *Advanced 36 Coexistence User's Guide*, SC41-8386

  This manual focuses on PC connectivity to SSP Release 7.5, including PC Support/36 and Client Access/400.

- *Advanced 36 Operator Tasks - Multiple Operating Systems*, SC41-8384

  This manual focuses on defining and controlling the Internal Local Area Network support between SSP and OS/400 and provides details on the // RUN400 statement (run OS/400 commands from SSP) and STRM36MPRC (Start SSP procedure from OS/400) command functions.

How To Get ITSO Redbooks

This section explains how both customers and IBM employees can find out about ITSO redbooks, CD-ROMs, workshops, and residencies. A form for ordering books and CD-ROMs is also provided.

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  ```
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  TOOLS SENDTO CANVM2 TOOLS REDPRINT GET SG24xxxx PACKAGE (Canadian users only)
  ```

  To get lists of redbooks:

  ```
  TOOLS SENDTO WTSCPOK TOOLS REDBOOKS GET REDBOOKS CATALOG
  TOOLS SENDTO USDIST MKTTOOLS MKTTOOLS GET ITSOCAT TXT
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  ```

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  ```
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  ```

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  ```
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Glossary

Assigned devices. These are the local display devices that are defined in an SSP machine configuration object to have the SSP machine display its Signon display when the SSP machine is started (IPLed). This is specified in the SSP machine configuration object (CRTM36CFG command) when you enter a ″Y″ under the heading ″Display M36 Signon at IPL″ on the Define M36 Dsp and Prt Dev Attr display.

Ended SSP machine. An ended SSP machine is the phrase used to represent an SSP machine that has been ″powered off″ by an SSP POWER OCL statement or ended by an OS/400 Advanced 36 ENDM36 command. The OS/400 Display AS/400 Advanced 36 Machine (DSPM36) command and Work with AS/400 Advanced 36 Machine (WRKM36) command show the status of an SSP machine under the option ″Display M36 attributes.″″

Fax. This is the ″document″ or ″file″ that is transmitted to a facsimile machine or received from a facsimile machine.

Heritage System/36. These are the older, non-RISC based System/36 models (5360, 5362, 5363, 5364) including actual machine hardware and the associated releases of SSP (up through Release 6.0).

Internal Local Area Network (ILAN). This is the ″logical LAN line″ used to communicate between SSP machines and OS/400 within the AS/400 Advanced 36. The ILAN configuration is similar to an actual token-ring LAN configuration used to communicate with external personal computer workstations or other systems, including AS/400 systems, other System/36s, and mainframe hosts. Display Station Pass-Through (DSPT), Object Distribution Facility (ODF), and Distributed Data Management (DDM) require that the ILAN be active when communicating between SSPs and OS/400 on the same Model 436. Functions such as OS/400 Transfer to an M36 machine (TFRM36), OS/400 Start M36 Procedure (STRM36PRC), and SSP // RUN400 do not use the ILAN configuration.

Logical workstation. This is the term used to describe the display (Wn) or printer (Pn) defined in an SSP machine configuration record. When the OS/400 Transfer to AS/400 Advanced 36 (TFRM36) command transfers from a physical workstation (OS/400 DSPnnn device), a logical workstation from the SSP machine configuration record is assigned to that physical workstation.

Logical machine. This is another term for an SSP machine. Logical machine is used in some of the formal As/400 Advanced 36 publications.

Mapped devices. These are the local display, print, tape, diskette, optical devices, and communication lines that are defined in the SSP machine configuration object. A mapped device or line can then be used by an SSP machine. If a device or communication line is not mapped to an SSP machine, the SSP machine cannot use the device or communication line unless an SSP job uses the CHGSYSVL procedure and specifies a device or communication line to be acquired.

M36. M36 is the 3-character abbreviation for referring to an SSP machine. M36 appears on OS/400 AS/400 Advanced 36 commands and command related displays. For example, the Start AS/400 Advanced 36 Machine (STRM36) command that starts (IPLs) an SSP machine.

***M36 object**. The specific OS/400 object type that defines the SSP machine.

***M36CFG object**. The specific OS/400 object type that defines the SSP machine configuration object.

Physical workstation. This is the term used to describe the OS/400 display device (DSPnnn) known to OS/400. When the OS/400 Transfer to AS/400 Advanced 36 (TFRM36) command transfers from a physical workstation (OS/400 DSPnnn device), a logical workstation is assigned to the physical workstation.

SLIC or LIC. System Licensed Internal Code or Licensed Internal Code. Either of these terms refer to the AS/400 microcode that interfaces the operating system to the actual machine hardware. On an AS/400 Advanced 36, this microcode emulates the System/36 microcode used by SSP.

SSP machine. SSP machine is the term used in this redbook that is equivalent to the term used in the formal AS/400 Advanced 36 publications - AS/400 Advanced 36 machine. The SSP machine is the representation of an SSP running (started) on AS/400 Advanced 36. When started, the SSP machine includes configuration information from the OS/400 SSP machine configuration object, installed SSP features and licensed programs, and customer data and programs.

SSP machine configuration object. SSP machine configuration object is the term used in this redbook that is equivalent to the term used in the formal AS/400 Advanced 36 publications - AS/400 Advanced 36 machine configuration object. The SSP machine configuration object defines the display, printer, tape, diskette, optical device, or communication line resource that is used by an SSP machine. The configuration information is required to map OS/400

device and communications objects to a started SSP machine. The SSP machine configuration object must be applied to an SSP machine at the time the SSP machine is started (through the STRM36 command).

Started SSP machine. A started SSP machine is the phrase used to represent an SSP machine that has completed its IPL processing. The word ″started″ is used on OS/400 Advanced 36 displays that show the status of an SSP machine. The OS/400 Display AS/400 Advanced 36 Machine (DSPM36) command and Work with AS/400 Advanced 36 Machine (WRKM36) command show the status of an SSP machine under the option ″Display M36 attributes.″

Unmapped devices. These are the local devices and communication lines that are not defined in an SSP machine configuration object. Unmapped devices and communication lines are not generally available to an SSP machine that uses the SSP machine configuration object. However, an SSP user may issue the CHGSYSVL procedure with DEVMAP (device or communication line) to temporarily permit the SSP to use the device or communication line. The OS/400 Transfer to AS/400 Advanced 36 (TFRM36) command can make use of unmapped logical workstations defined in the SSP machine configuration record.

SSP Release 7.1 or Release 7.5. These are the SSP releases that run on the RISC-based AS/400 Advanced 36 Model 236 (Release 7.1) and Model 436 (Release 7.5).

Index

Special Characters

// RUN400 67
// RUN400 authority 67
*M36 object 5, 23
*M36CFG object 5, 29
*NULL user id 181
  matching parameters 182

Numerics

1/4-inch tape cartridge support 4

A

A1, SSP disk 28
acquiring a device by an SSP machine 42
adding OS/400 to 436
  SSP 7.5 and OS/400 preloaded 18
Advanced 36
  data access 269
Advanced 36 server job 61
already verified 93, 94
apply configuration 60
APPN 51, 79, 88, 90, 183, 207, 215, 231, 242, 245, 246
AS/400 Advanced 36
  service 119
  support 119
AS/400 Advanced 36 server job 43, 61
assigning a device to an SSP machine 42
automatic signon (display station pass-thorough) 277
automatic start of SSP ILAN 110
automatic starting an SSP machine 94
auxiliary storage pool (ASP), AS/400 system 28

B

backing up an SSP machine 28
bibliography 339

C

changing an M36 configuration 60
changing shipped ILAN configuration 95
Check Product Option 301
CHGSYSVL 4
CHGSYSVL CTLPOINT 95
CHGSYSVL DEVMAP 44
Client Access/400
  and PC Support /36 137
Client Access/400 for DOS Extended
  Ethernet through OS/400 201
  matching parameters for Ethernet 210
  matching parameters for Token-Ring through OS/400 199
Client Access/400 for DOS Extended *(continued)*
  System Requirements 167, 184
  system requirements for Ethernet through OS/400 202
  token-ring 167
  token-ring through OS/400 183
Client Access/400 for OS/2
  matching parameters 230
  matching parameters for token-ring through OS/400 242
  system requirement 213
  system requirements for token-ring through OS/400 232
  token-ring 213
  token-ring through OS/400 231
Client Access/400 for OS/2 to OS/400
  matching parameters for Token-Ring via SSP 265
  system requirements for token-ring through M36 246
  Token-Ring through an SSP Machine 245
COBOL Dynamic-Call 4
coexistence functions 64
communication line definitions for SSP machine configuration 47
communication line speed support 50
communication protocols not supported by SSP 50
compress 28
configuration example 23
Configuration list 89
configuration table 75
consolidating AS/400 and 436
controller mapping 33
Create DDM File 279
Create Duplicate Object (CRTDUPOBJ) 30
create SSP machine 27
creating Advanced 36 machine
creating an SSP machine 28
creating an SSP machine configuration object 29
CRTDDMF 279
CRTM36 28
CRTM36 command 5
CRTM36 machine command 27
CRTM36CFG 29
CRTM36CFG command 5

D

D W (STATUS Workstation) 58
data access
  Advanced 36 269
database 272
  benefits 272
DDM
  considerations 286
  supported functions 286

DDM *(continued)*
unsupported functions 286
Dedicated Service Tools 120
define M36 attributes 31
define M36 communication lines 47
define M36 diskette devices 46
define M36 display and printer device attributes 41
define M36 tape and optical devices 44
device mapping 32, 35, 38
device sharing 42
DISABLE 114
DISABLE automatic signon 29
disable CRTM36PRC 29
Disabling your ILAN Subsystem 114
diskette device definitions for SSP machine configuration 46
Diskette Device Sharing 55
display and printer device definitions for SSP machine configuration 32
display software resource 23, 301
display station pass-thorough, ending session 275
Display Station Pass-Through 273
Distributed Data Management 279
DSPSYSVL 4, 57
DST 120

E

ECS
Electronic Customer Support 122
EDITNRD 281
Electronic Customer Support
ECS 122
NRD for electronic PTFs 285
ENABLE automatic signon 29
Ending an SSP machine 64
Ethernet through OS/400 201
exiting CRTM36 32

F

facsimile support 299
Facsimile Support for OS/400, OS/400 output 327
Facsimile Support for OS/400, SSP output 327
faxing SSP output 317

G

glossary 345

I

ILAN 75
ILAN problem resolution 114
Installation 11
installation tasks
adding OS/400 to 436 18
consolidating AS/400 and 436 21
creating Advanced 36 machine 19
installation tasks *(continued)*
overview 13
upgrading model 236 to model 436 15
installing a new 436
SSP 7.5 and OS/400 preloaded 17
SSP 7.5 preloaded 16
Internal Local Area Network 75
APPC controller definition for Operating System/400 88
APPC definition for SSP 95
commands 109
configuration 80
controller commands 109
functions 110
how to maintain 107
how to start 107
ILAN worksheet example 76
network attributes for Advanced 36 85
problems with ILAN 114
procedures 110
subsystem status 113
worksheet blank 77
Introduction 1
IPL type 31

L

LAN errors 155
LAN speeds 155
licensed program changes 4
local configuration list 91
logical workstation 35, 38

M

M36 5
M36 id 61
M36 user profile 63
matching SSP and OS/400 ILAN configuration parameters 106

N

Network Resource Directory 281
NRD 281

O

Object Distribution Facility 287
Operating System/400
database 272
optical device mapping 44
Optical Device Sharing 55
OS/400 61
OS/400 APPC security 89
OS/400 command prompting 70
OS/400 device mapping 32

P

PC Support /36
  and Client Access/400 137
PC Support/36 to an SSP Machine
  system requirements 149
  token-ring 149
  twinax 141
PC Support/36 to SSP
  matching parameters for token-ring 165
  system requirement 141
physical workstation 35, 38
Powering off your SSP machine 114
print device sharing 54
print key output 72
print spooling 32
printer output 299
program temporary fix (PTF) 122
PTF
  program temporary fix 122
PTFs
  electronic 285

Q

QM36nnn job 43
QM36nnn jobs 56, 59, 61
QNURHccc jobs 62
QSYSWRK - OS/400 subsystem 60
QSYSWRK jobs 61

R

redbook ordering 339
remote configuration list 91
Remote Support Tool
  RST 121
RPG External Call 4
RST
  Remote Support Tool 121

S

secure location 91
security 67
  SSP 178
security over ILAN 89
sending SSP output through fax 317
server job 43, 61
service
  AS/400 Advanced 36 119
service offerings 119
sharing devices among OS/400 and SSP 52
spooled output 299
spooled output, user profile assignment 71
SQL consideration 279
SSP communication enhancements 4
SSP device mapping 32
SSP file system 271
SSP machine 5
SSP machine configuration object 5
SSP machine id 61
SSP printed output, user profile assignment 71
SSP procedure, control command, OCL
  enhancements 4
SSP security 178
SSP,OS/400 mapping 32
SSP,OS/400 spooling 32
starting an M36 machine 60
starting an SSP machine 60
Starting an SSP machine from OS/400 94
starting ILAN for SSP 110
STRM36 60, 94
STRM36PRC example 71
support
  AS/400 Advanced 36 119
System/36 environment ix

T

tape and optical device definitions for SSP machine
  configuration 44
tape device mapping 44
Tape Device Sharing 55
TFRM36 command 64
Time of day-based enhancements 4
transferring between SSPs without ILAN 70
transferring from a mapped workstation 66
transferring from an ummapped workstation 66
transition aid save and restore 4

U

user id considerations 71
user profile, SSP output 63
user profile, STRM36 72

W

WKSTYPE procedure 4
Work Management, OS/400 61
Work with Configuration Status 53
Work with Object Locks 53
WRKCFGSTS 53
WRKOBJLCK 53

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