



Unidade 2

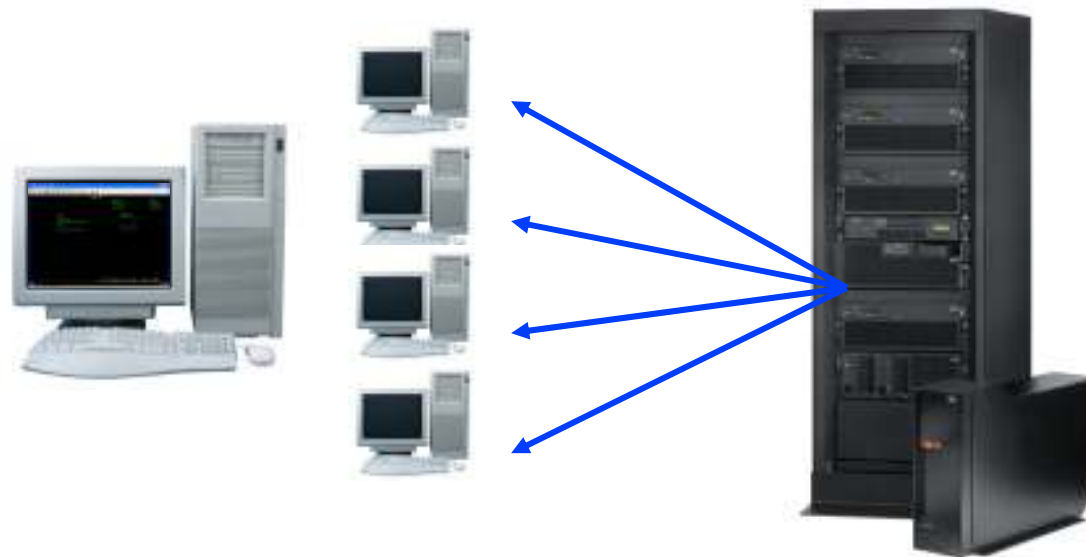
Introdução à Operação do Sistema IBM i





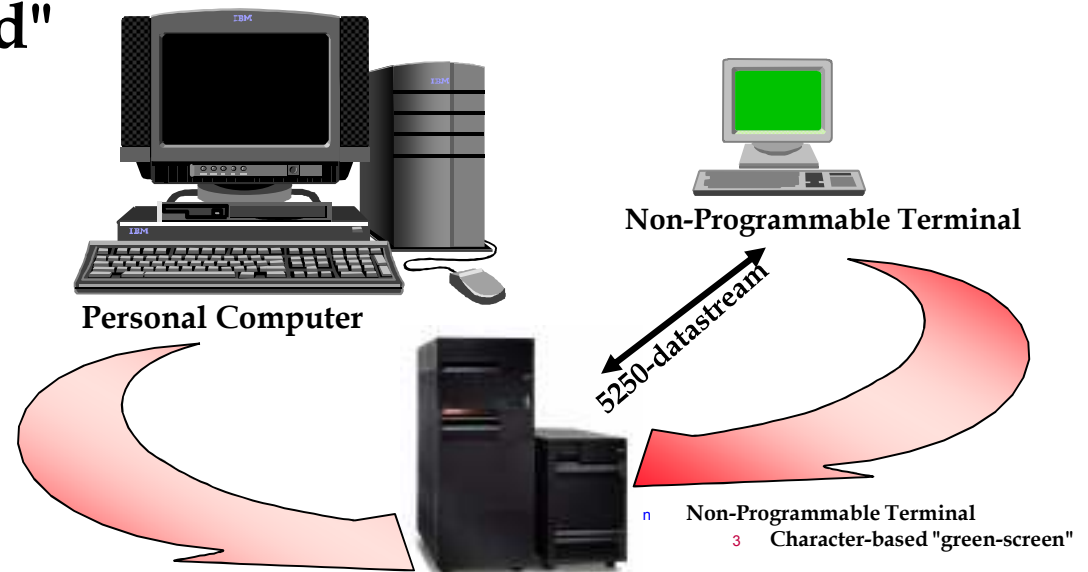
Conexão e Navegação

- Emulação de terminais 5250
- IBM System i Access for Windows

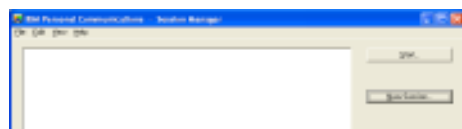


Interface "Dual" para o IBM i

- Graphical user interface
 - Windows PC
 - » System i Navigator GUI
- Operações "Character-based"
 - » 5250-session
 - Windows/Linux workstation
 - » Using System i Access for Windows
 - » 5250 emulation



Signon



Configure PC5250

System name: 192.168.100.1

Workstation ID:

- ☒ Use Computer name
- ☐ Use Windows user name
- ☐ Specify workstation ID

Truncate:

- ☐ Beginning characters
- ☒ Ending characters

Type of emulation:

- ☒ Display
- ☐ Printer

Size: 24x80

Printer Association

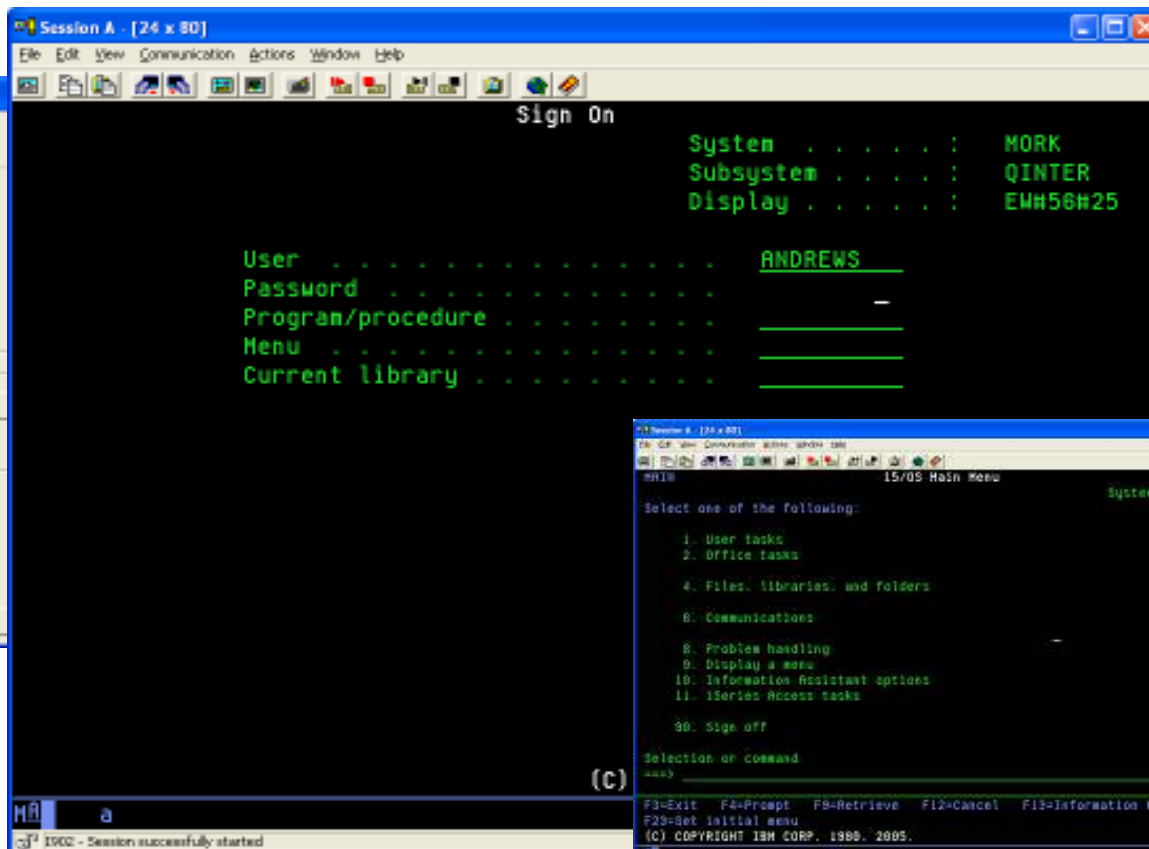
Bypass signon

Auto-reconnect

Host code page: 285 United Kingdom

Port number: 23

OK Cancel





Tela de Sign On

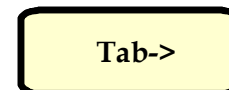
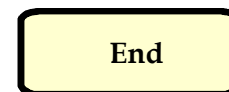
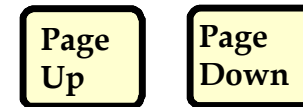
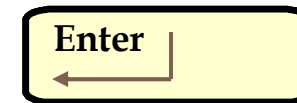
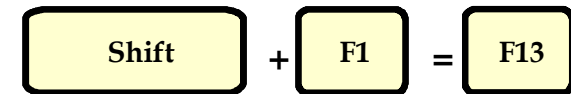
Sign On	SYSTEM SUBSYSTEM DISPLAY	USCS QINTER DSP03
USER	<input type="text"/>	
PASSWORD	<input type="password"/>	
PROGRAM/PROCEDURE	<input type="text"/>	
MENU	<input type="text"/>	
CURRENT LIBRARY	<input type="text"/>	



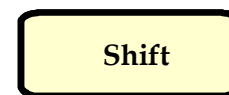


- **Function keys: F1-F24**
 - F1-F12
 - F13-F24 (Shift+ F1-F12)
- **Enter**
- **Error Reset**
 - When keyboard locks
- **Page Up/Page Down**
- **Erase**
 - Erase all characters right of cursor
- **Field Exit**
 - Next input capable field

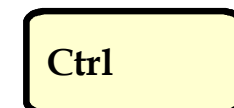
Teclado 5250



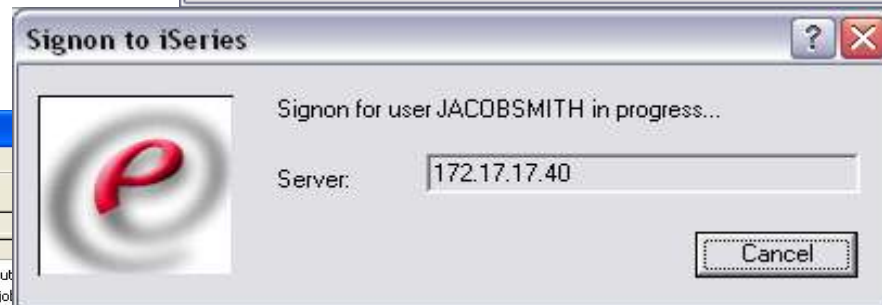
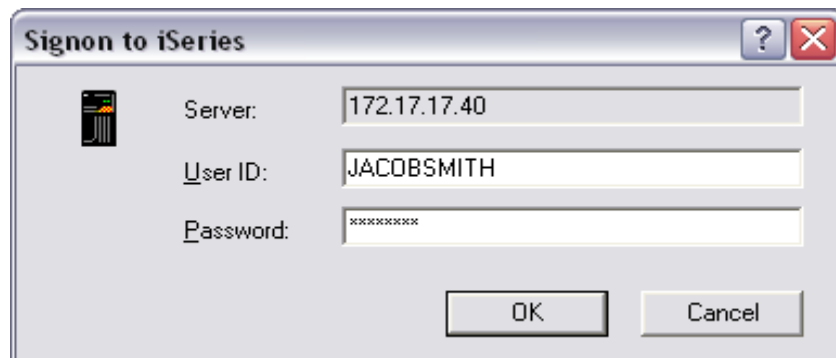
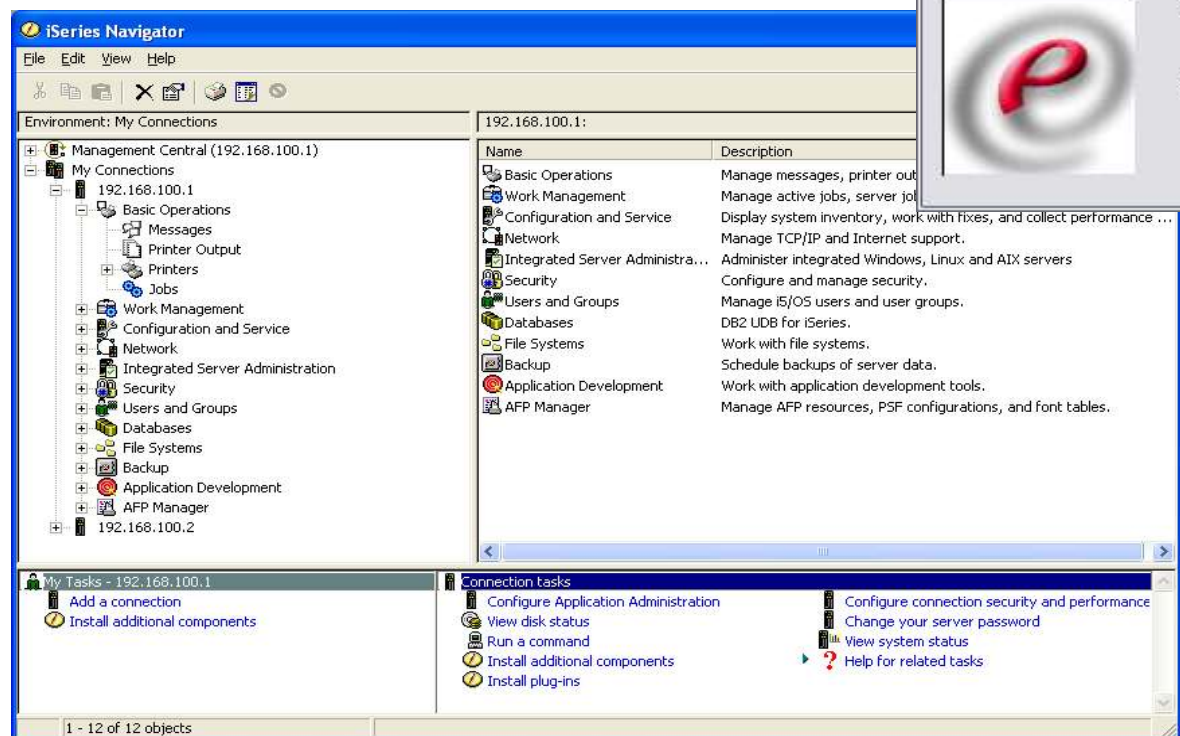
ou



+ Right

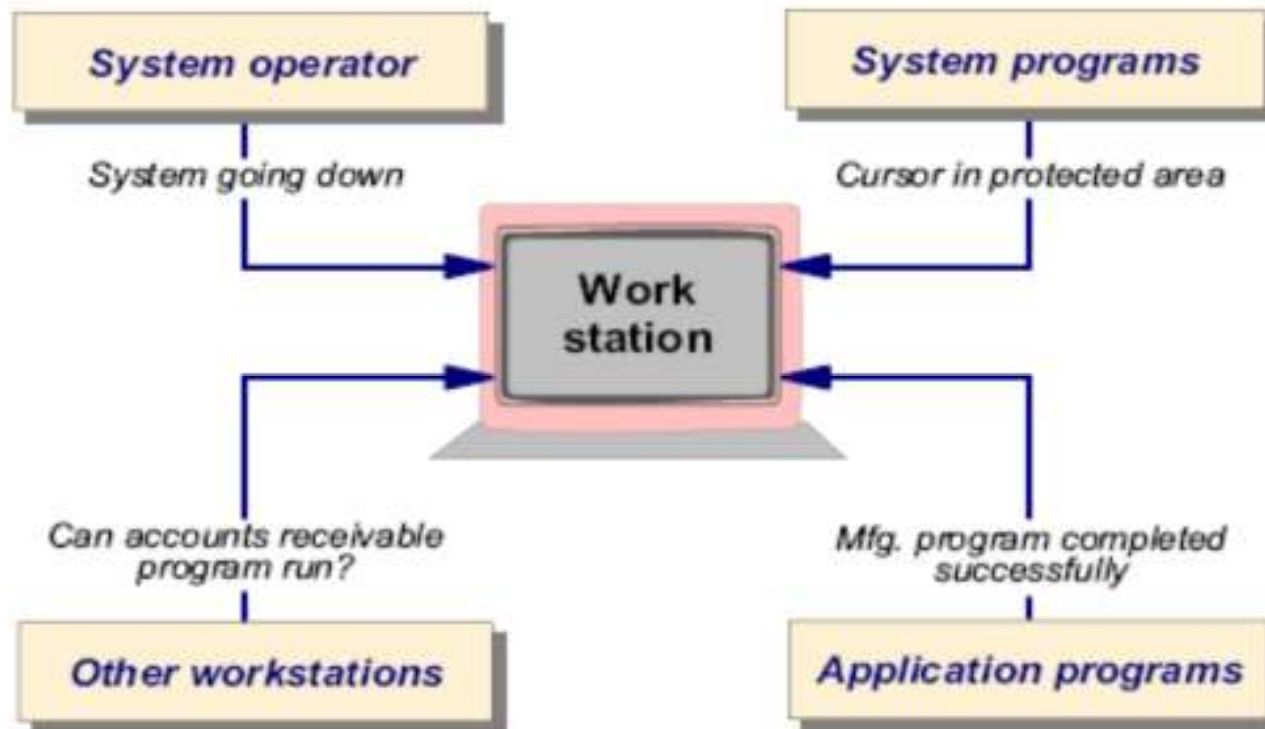


Conexão e Navegação



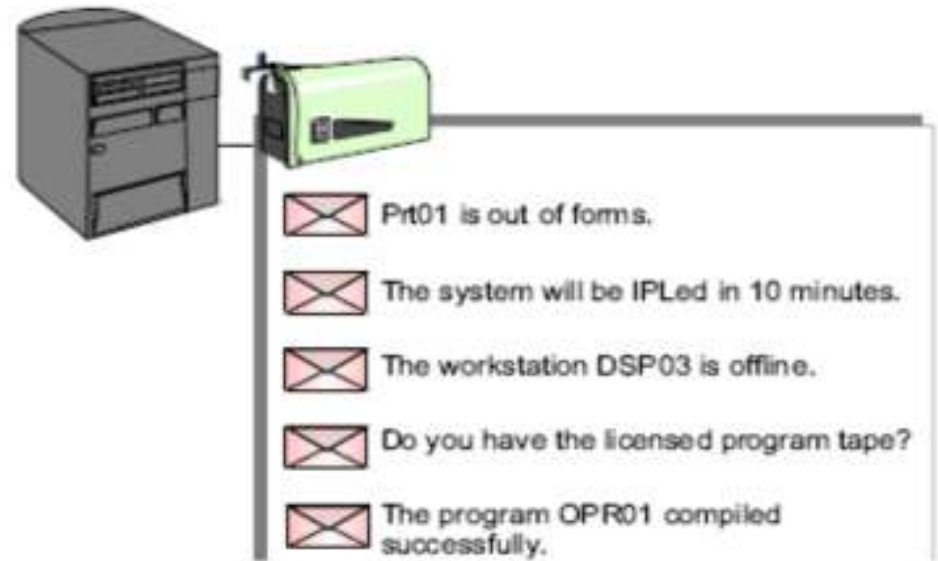


Tratamento de Mensagens



Enviando Mensagens

- Mensagens são gerenciadas numa fila de mensagens, que pode ser comparada à uma caixa postal de correio.

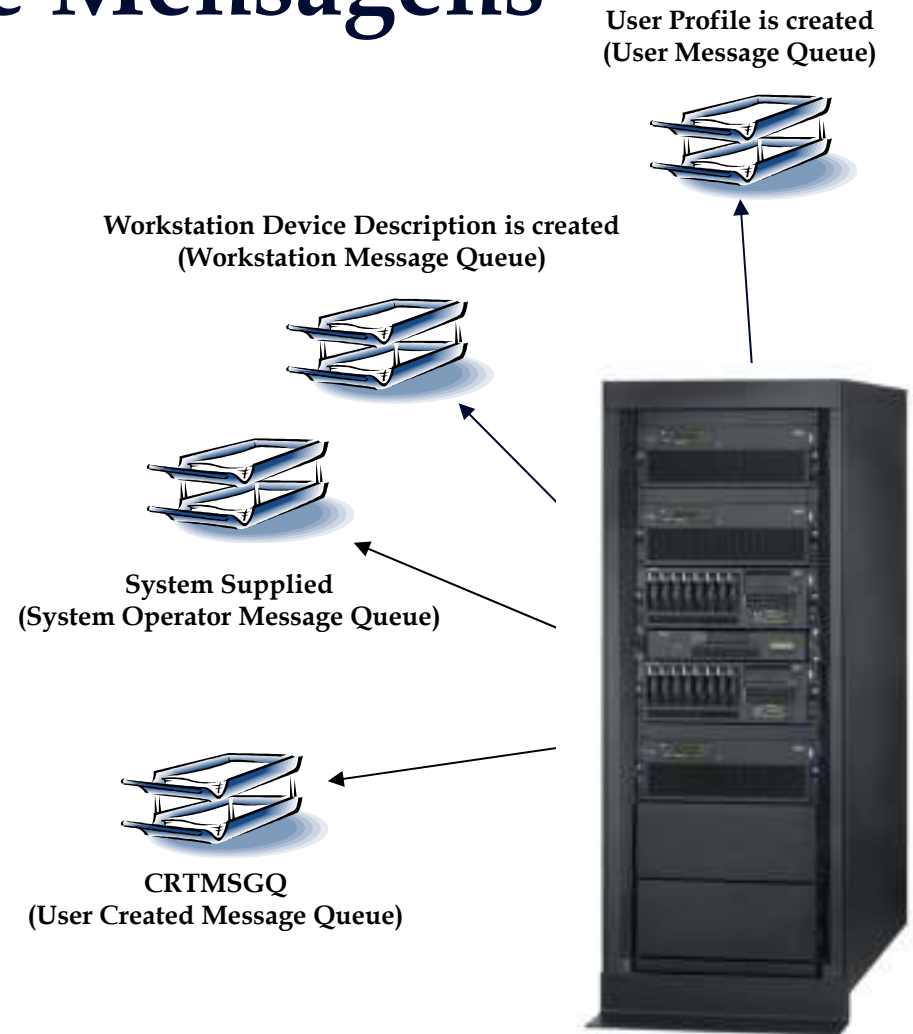




Criando filas de Mensagens

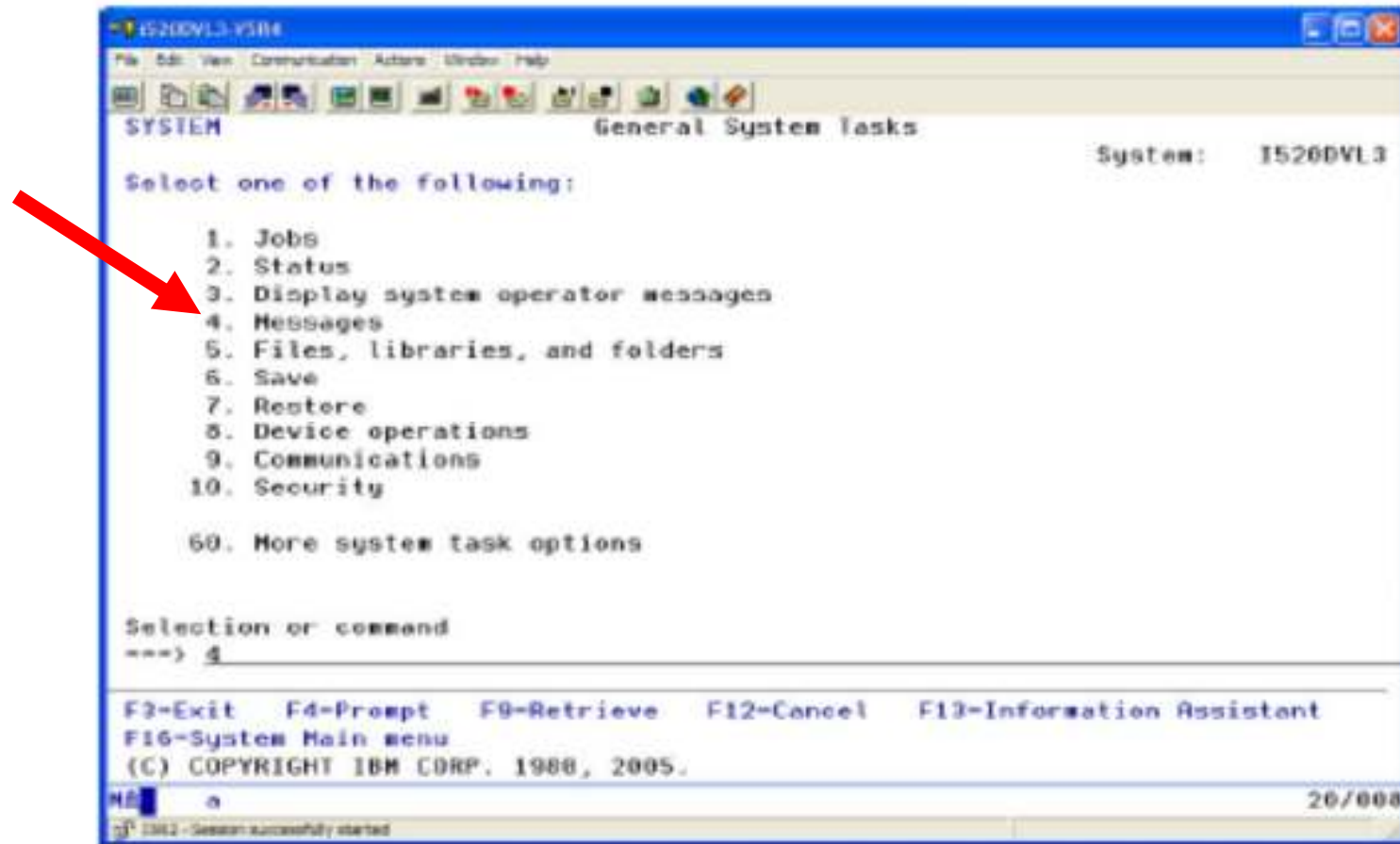
Message queues podem ser criadas quando:

- Um device description para uma workstation (display) é criado.
- Uma profile de usuário é criada.
- O comando CL CRTMSGQ é executado.

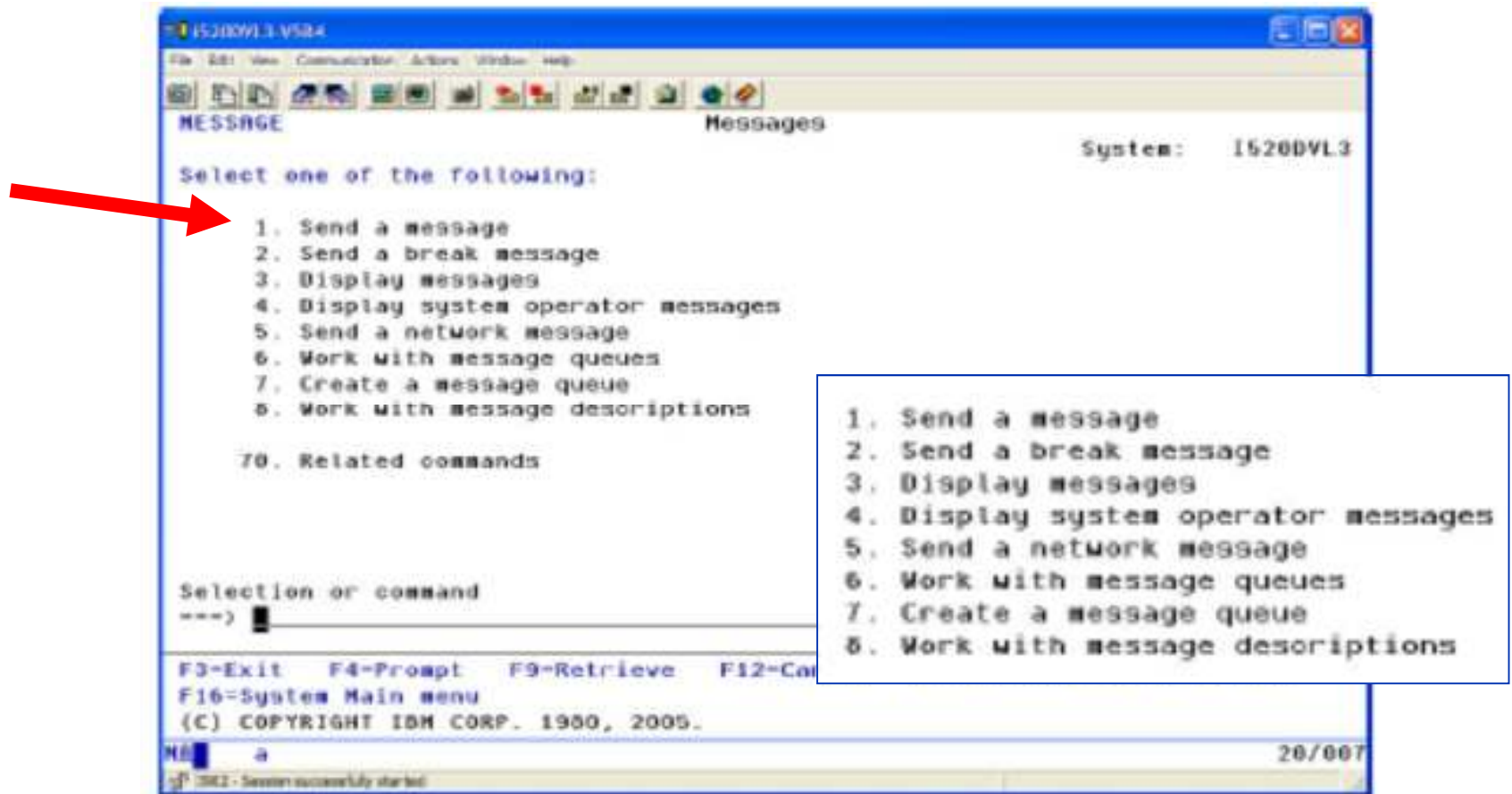




Enviando mensagens com a interface 5250



Enviando mensagens com a interface 5250





Enviando mensagens com a interface 5250

IS200ML3-VSR4

File Edit View Communication Actions Window Help

Send Message (SNDMSG)

Type choices, press Enter.

Message text

To user profile Name, *SYSOPR, *ALLACT...

Additional Parameters

To message queue Name, *SYSOPR, *HSTLOG

Library *LIBL Name, *LIBL, *CURLIB

+ for more values

*LIBL

Message type *INFO *INFO, *INQ

F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display

F24=More keys

More...

05/037

2002 - Session successfully started





Enviando mensagens com a interface 5250

Send Break Message (SNDBRKMSG)

Type choices, press Enter.

Message text

To work station message queue Name, *ALLWS
Library *LIBL Name, *LIBL
+ for more values
*LIBL

Message type *INFO *INFO, *INQ
Message queue to get reply . . . QSYSOPR Name
Library *LIBL Name, *LIBL

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

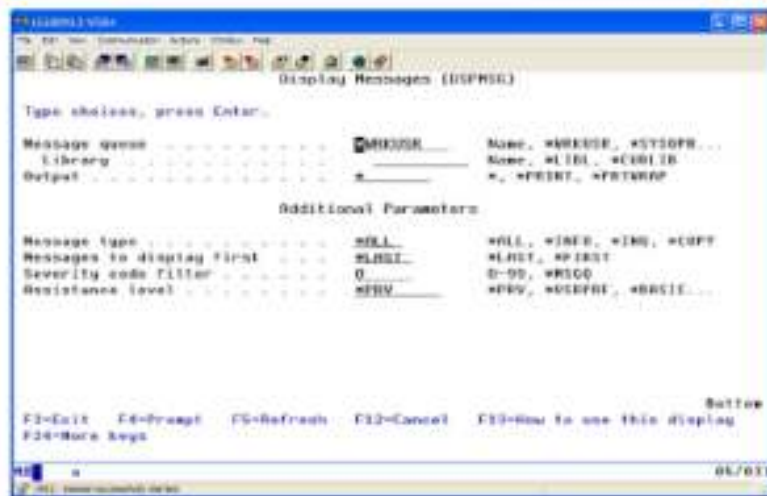
More...

05/03/77

O comando Send Break Message (SNDBRKMSG) é usado para enviar uma mensagem imediata a uma ou mais filas de mensagens de workstations.



Enviando mensagens com a interface 5250



O comando Display Messages (**DSPMSG**) é usado para exibir ao usuário as mensagens recebidas em uma determinada fila de mensagens.

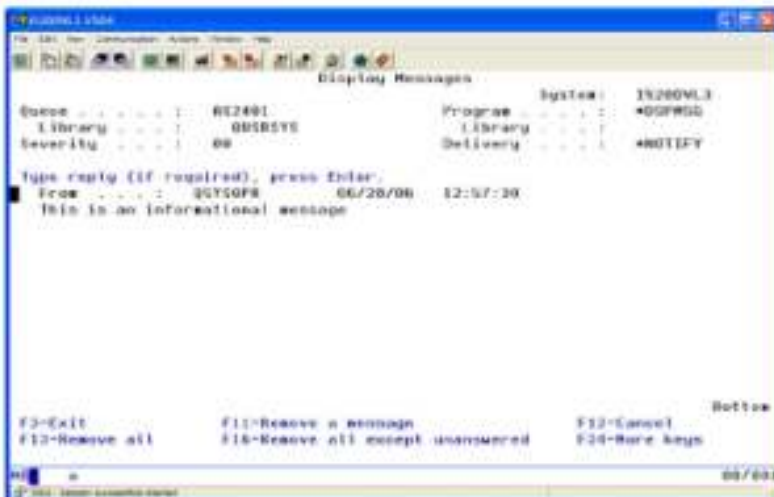
F10=Display all messages

F11=Remove a message

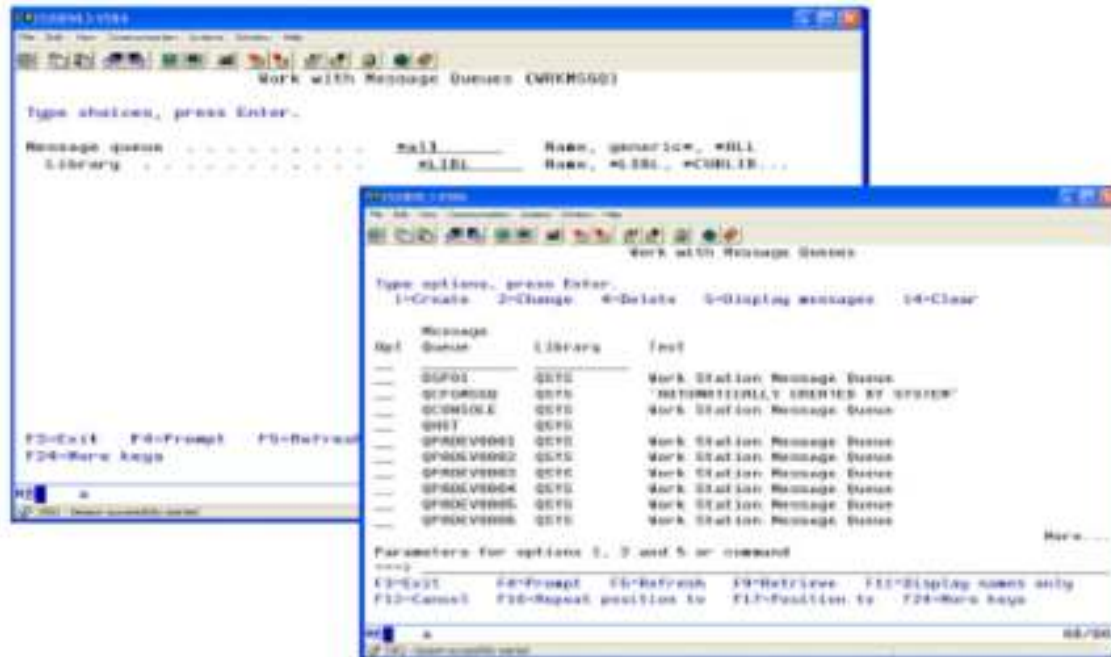
F13=Remove all

F14=Work with problem

F16=Remove all except unanswered



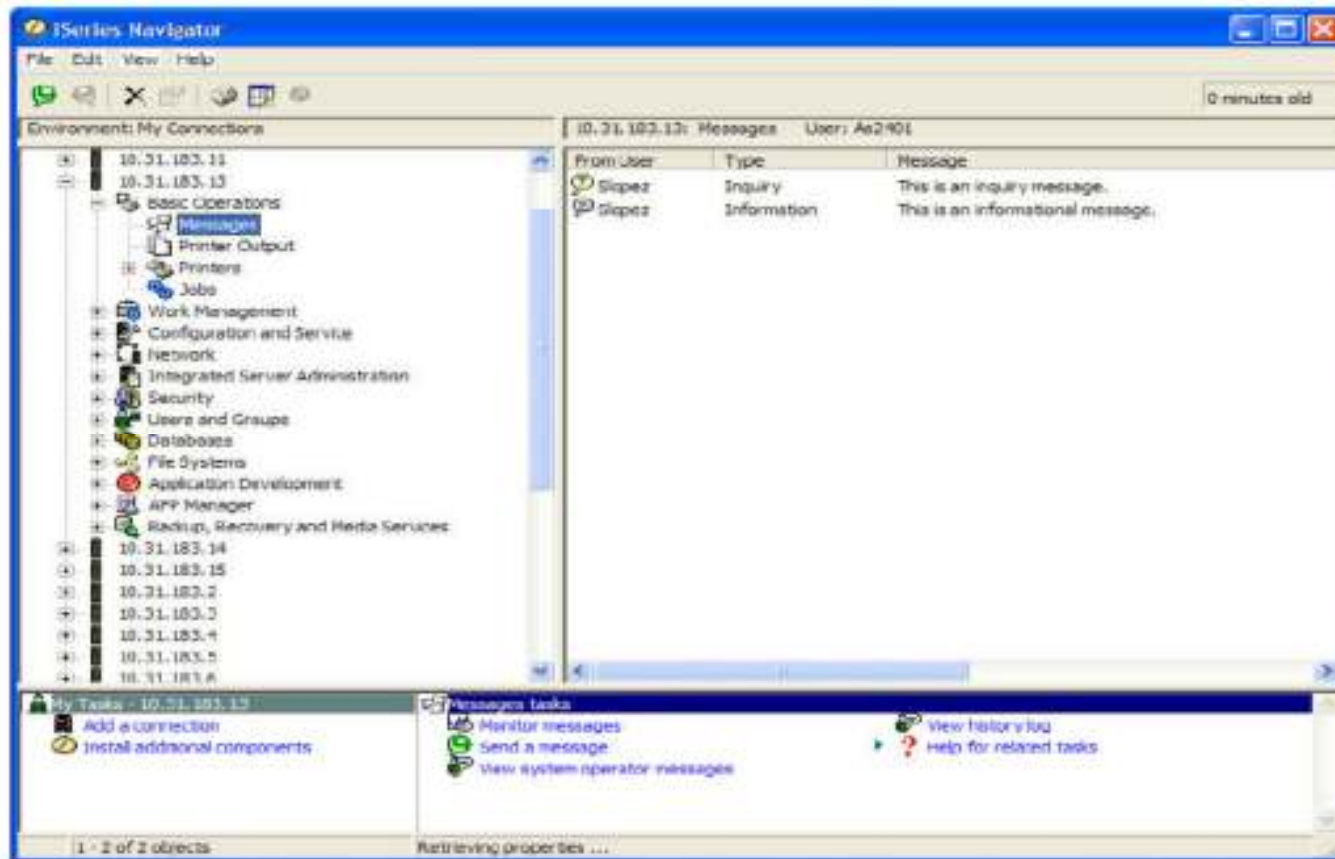
Trabalhando com filas de mensagens



O comando Work with Message Queues (**WRKMSGQ**) exibe uma lista de mensagens que você tem autoridade para utilizar.



Tratamento de Mensagens com o IBM System i Access for Windows





Operator message queue

DSPMSG QSYSOPR

Display Messages

Queue :	QSYSOPR	System:	XXXXXXX
Library :	QSYS	Program :	*DSPMSG
Severity :	10	Library :	
		Delivery :	*HOLD

Type reply (if required), press Enter.

Critical storage lower limit reached.

Serious storage condition may exist. Press HELP.

Volume CD51006444 removed from optical device.

Volume CD51006441 added to optical device.

Critical storage lower limit reached.

Critical storage lower limit reached.

Subsystem QINTER1 in library R3LRP400 starting.

Load form type '*STD' device TSCPRT writer TSCPRT. (G B I H R C)

Reply . . .

Operating System/400 grace period expired.

Subsystem QINTER1 started.

Critical storage lower limit reached.

Critical storage lower limit reached.

Serious storage condition may exist. Press HELP.

Informational

Inquiry

More...

F3=Exit

F11=Remove a message

F12=Cancel

F13=Remove all

F16=Remove all except unanswered

F24=More keys





History log

- **Histórico do Sistema**
 - Automaticamente registra a atividade do sistema
 - » Job information (start e stop times)
 - » Falhas de Componentes
 - » Informações críticas de sistema
 - Storage thresholds
- **Informação gravada para uma log de sistema**
 - QHST
 - » Múltiplos arquivos físicos QHST<yyddda>





History log

DSPLOG

Display History Log Contents

Job 001402/QIJS/QIJSCCC started on 02/04/05 at 00:00:02 in subsystem QSYSWRK

Job 001403/QIJS/RMVHSTJS started on 02/04/05 at 00:00:02 in subsystem QSYSWRK

Job 001404/QIJS/RMVLOGEJS started on 02/04/05 at 00:00:02 in subsystem QSYSWRK

Job 001405/QIJS/QIJSCREM started on 02/04/05 at 00:00:02 in subsystem QSYSWRK

Job 001402/QIJS/QIJSCCC ended on 02/04/05 at 00:00:04; 1 seconds used; end co

Job 001405/QIJS/QIJSCREM ended on 02/04/05 at 00:00:04; 1 seconds used; end c

Job 001404/QIJS/RMVLOGEJS ended on 02/04/05 at 00:00:04; 1 seconds used; end

Job 001403/QIJS/RMVHSTJS ended on 02/04/05 at 00:00:04; 1 seconds used; end c

Description for device QPADEV0001 changed.

Job 001406/TONI/QPADEV0001 started on 02/04/05 at 08:59:05 in subsystem QINTE

Job 001309/QYPSJSVR/QYPSJSVR was ended by user TONI.

Job 001336/QUSER/QZRCRVS ended on 02/04/05 at 09:22:33; 1 seconds used; end

More...





A linha de comandos





Comandos do Sistema

- Todas as funções do sistema são controladas por meio do uso de comandos:
 - Entrados pelo usuário
 - Em um programa
 - Interativamente ou em Batch
- A família de comandos é chamada Control Language (CL).
- Todo comando instrui o sistema para executar uma ação específica.

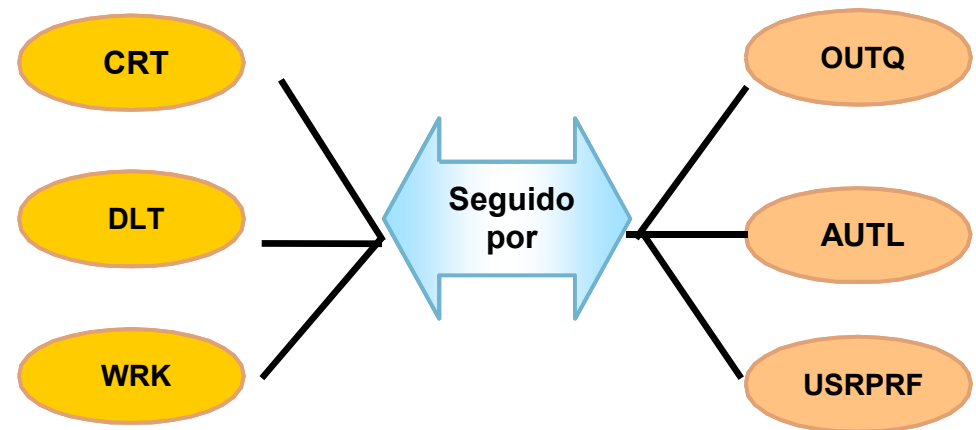


Sintaxe dos Comandos



Formato de comandos IBM i

- **Convenção típica de comandos**
 - Verbo
 - » ADD, DLT, CRT, WRK DSP
 - Objeto
 - » OUTQ, AUTL, USRPRF, JOB
- **Que comando eu necessito ?**
 - Opções do Menu
 - F4 na linha de comandos
 - » Selecione por verbo/objeto e ...
 - Comando começando com ...
 - » Por exemplo, CRT* e tecle Enter



- **Prompting de comandos**
 - ✓ F4
- **Help sensitivo a cursor**
 - ✓ F1



A linha de Comandos

Table 1: Abbreviation	Table 2: Action Performed
CRT...	Create
DLT...	Delete
DSP...	Display
HLD...	Hold
PWRDWN...	Power down
WRK...	Work

Table 3: Abbreviation	Table 4: Item on Which Action is Performed
...AUTL	Authorization List
...DEV D	Device description
...JOB D	Job description
...JOBLOG	Job log
...LIB	Library
...MNU	Menu
...MSGQ	Message queue
...PF	Physical file
...SYS	System
...WTR	Writer





A linha de Comandos

Command name

Parameter

CRTL**LIB**

LIB(PAYLIB)



Action

Item

abbreviation



Keyword



Value



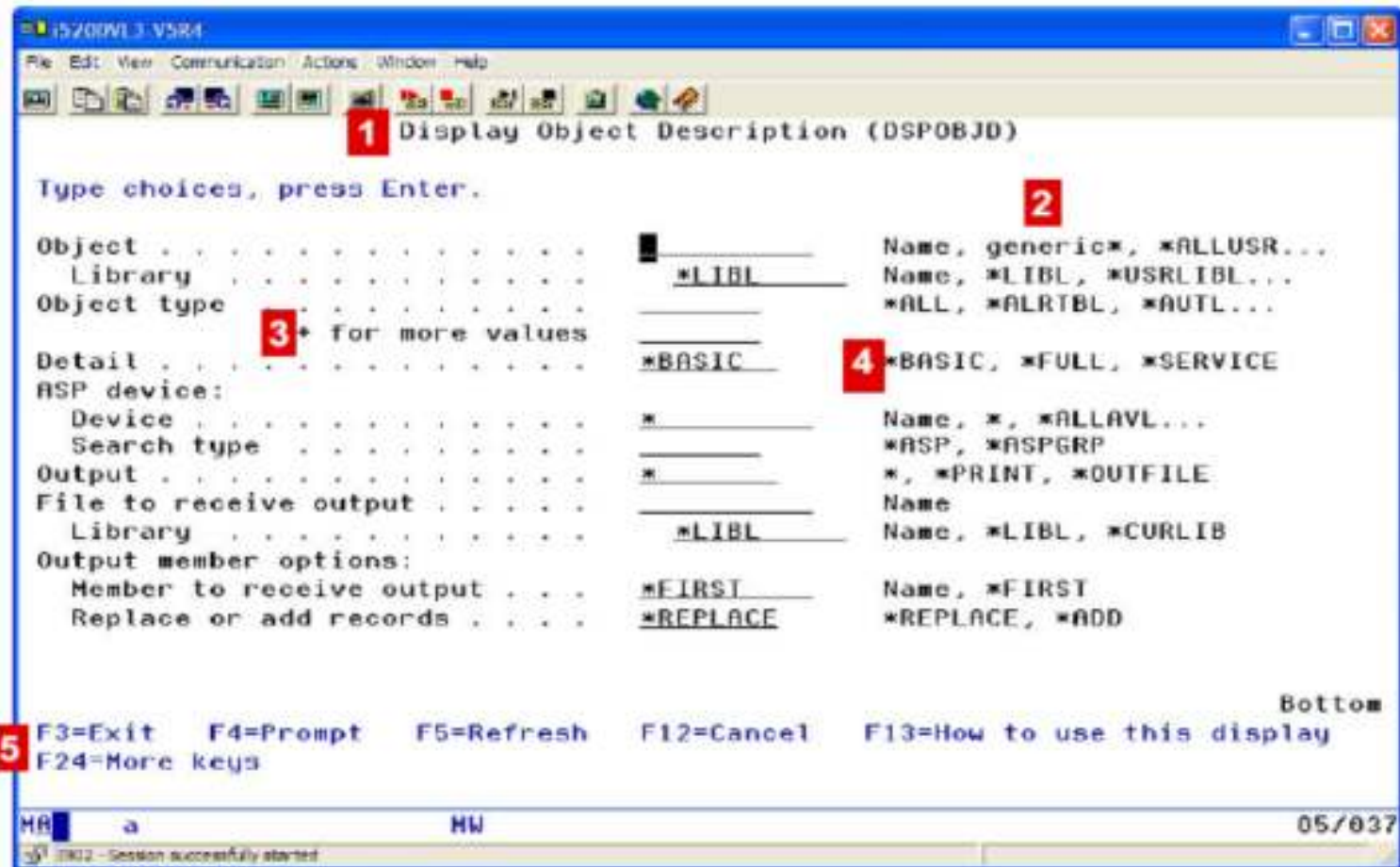


PROMPT - F4



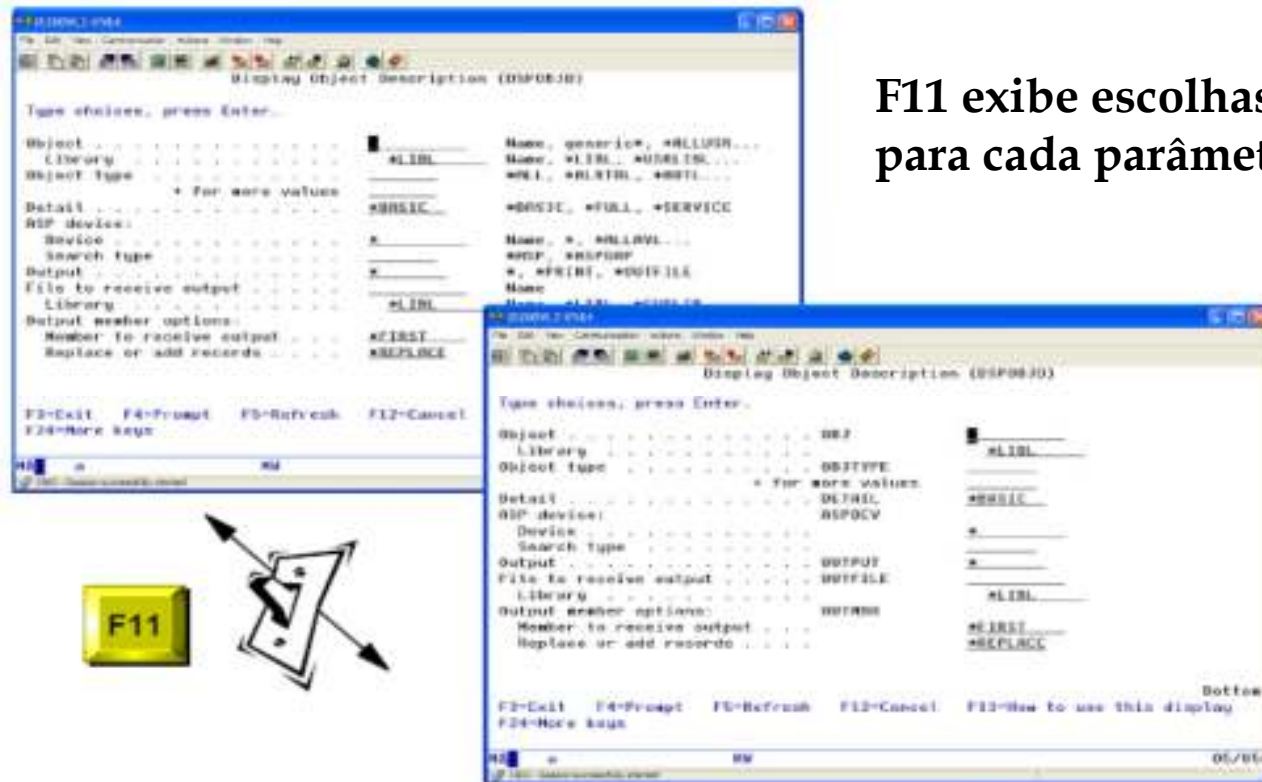


Shortcuts



F11

F11 exibe escolhas para cada parâmetro





Contexto da Linha de Comandos

Keyword form

Command Entry

Previous commands and messages:

(No previous commands or messages)

Selection or command

```
====> DSPOBJD OBJ(account) objtype(*file) detail(*full) output(*print)
```

Positional form

Command Entry

Previous commands and messages:

(No previous commands or messages)

Selection or command

```
====> dspobjd account *file *full *print
```





User assistance level

- **Default especificado em System Value**
 - QASTLVL
- **Especificado/Override na user profile**
 - Parâmetro ASTLVL
- **Modificado na sessão:**
 - F21 (onde possível – por exemplo, WRKSYSSTS)
 - » Modifica o assistance level para uma sessão em particular
- **CL command**
 - Modificação da user profile
 - » F11 - Keywords for command
 - » CHGPRF or CHGUSRPRF
 - ASTLVL(*BASIC, *INTERMED or *ADVANCED)
 - Modifica o assistance level para o usuário em particular





Assistance levels

Basic

Display System Status

ITCGEN3

05/09/08 10:59:52

Disk space:

System storage (in 1,000,000 bytes) : 140660
System storage used : 75.59%
Total storage (in 1,000,000 bytes) : 175825

Users:

Signed on : 3
Temporarily signed off : 0
Suspended by system request or group jobs : 0
Signed off with printer output waiting to print : 9

Batch jobs:

Waiting for messages :
Running :
Held while running :
Ending :
Waiting to run/Schedule :
Held on job queue :
Waiting on held job queue :
Waiting on not assigned :
Ended with printer output :

F1=Help F3=Exit F5=Refresh

Intermediate

Display System Status

ITCGEN3

05/09/08 10:58:33

% CPU used : 24.2
% DB capability : 22.7
Elapsed time : 00:02:41
Jobs in system : 631
% perm addresses : .009
% temp addresses : .013

Auxiliary storage:

System ASP : 140.6 G
% system ASP used : 75.5893
Total : 175.8 G
Current unprotect used : 6008 M
Maximum unprotect . . . : 8517 M

System	Pool	Reserved	Max	-----DB-----	---Non-DB---		
Pool	Size (M)	Size (M)	Active	Fault	Pages	Fault	Pages
1	225.19	98.48	+++++	.0	.0	2.2	3.3
2	1643.81	3.79	255	.0	1.4	.1	1.1
3	742.62	.00	66	.0	.0	.1	.5
4	.25	.00	5	.0	.0	.0	.0
5	11.75	.00	3	2.7	21.8	.7	1.6

Bottom

Press Enter to continue.

F3=Exit F5=Refresh F10=Restart F11=Display transition data F12=Cancel
F19=Extended system status F21=Select assistance level





Comandos via Batch Files

Estrutura de um programa CL

- PGM - Opcional. Requerido se o programs recebe parâmetros quando chamado.
- DCL – Declara uma variável.
- DCLF – Declara um arquivo.
- ENDPGM - Opcional. Assumido se não estiver presente no código.

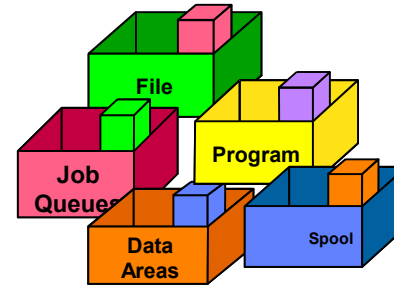
Description	Program Statement
Start of program	PGM (Optional) COPYRIGHT (Optional)
Declare file and variables	DCLF (maximum of five) DCL DCL
Program-Level Monitor messages	MONMSG MONMSG
IBM Commands	IF ELSE
Command-Level Monitor Messages	COMMAND MONMSG MONMSG
and/or User commands	
End of program	ENDPGM (optional)



Estrutura nativa de Bibliotecas

System
Library

QSYS



System
Objects

User
Libraries

LIBA

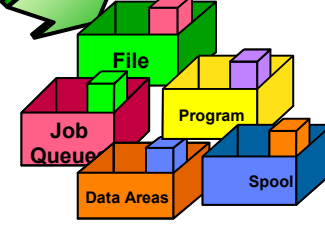
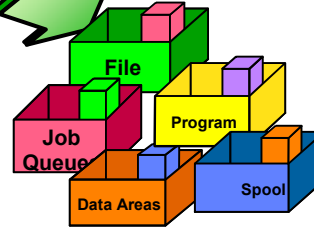
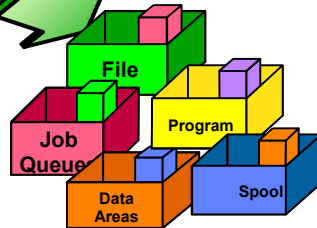
LIBB

LIBC

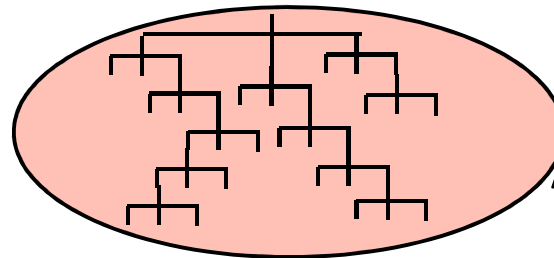
QTEMP



User
Objects



Hierarchical
Structure

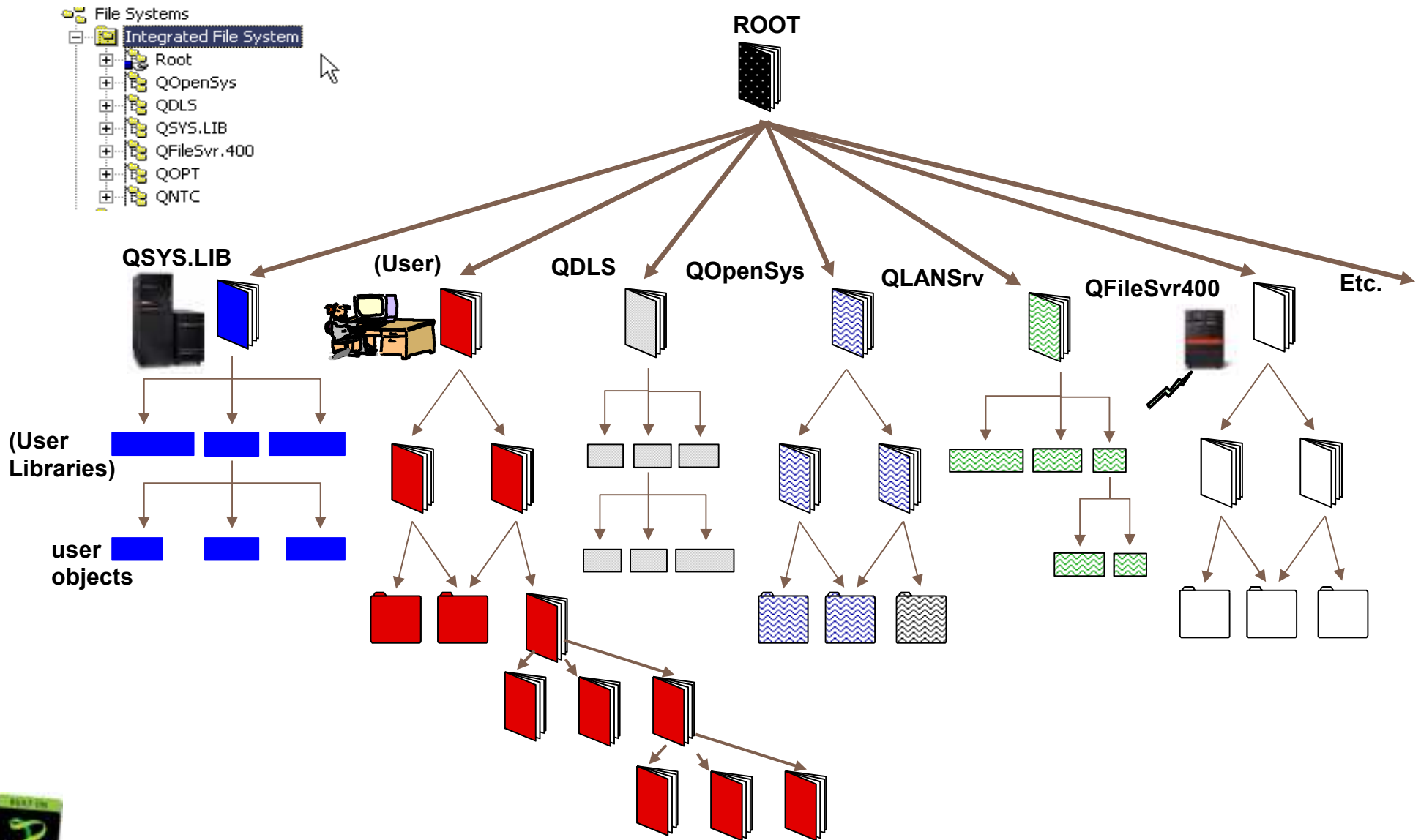


Compare





Integrated file system (IFS)





Programas Licenciados - Linguagens

PGM

PGM

PGM

PGM

- RPG/400
- COBOL/400
- AS/400 BASIC
- AS/400 PL/I
- AS/400 PASCAL
- FORTRAN/400
- C/400
- REXX/400
- SQL/400
- BASIC/400





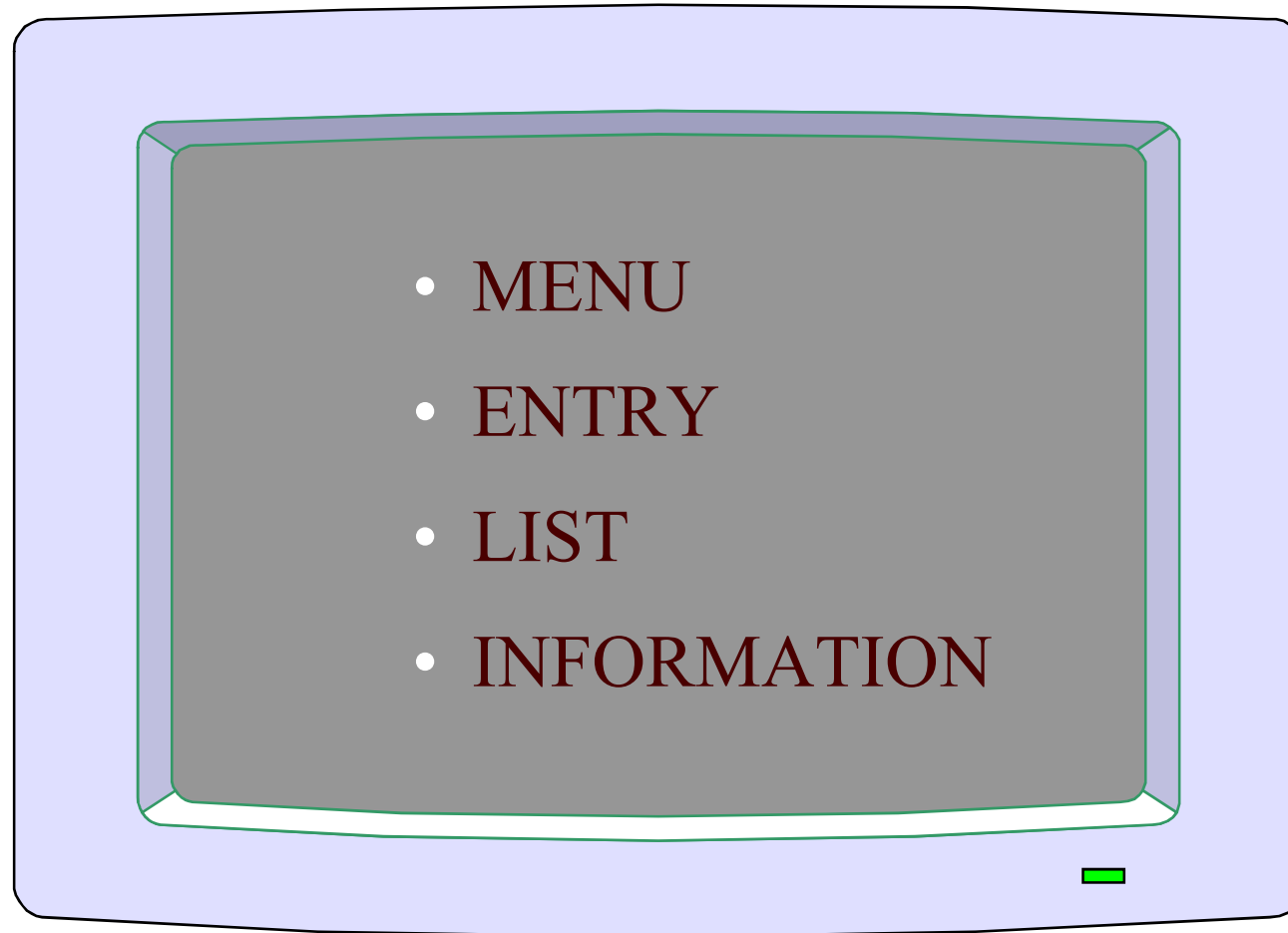
Programas Licenciados - Utilitários

- Application Development Tools (ADT)
- SQL/400
- Query/400
- Automação de Escritórios
 - » Office Vision/400
 - » Aplicações/Soluções
 - Pacotes de aplicações pré-desenvolvidas disponíveis para o Sistema. Permitem aumentar a produtividade ao possibilitar a implementação de determinadas aplicações genéricas rapidamente.





Tipos de Telas





MENUS

MAIN

AS/400 Main Menu

SYSTEM: IMES

Select one of the following:

1. User Tasks
2. Office Tasks
3. General system tasks
4. Files, libraries, and folders
5. Programming
6. Communiations
7. Define or hange the system
8. Problem handling
9. Display a menu
10. User support and education
11. Client Access Tasks

90. Slgn Off

Selection or command

GO MAJOR

==>

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

F23= Set initial menu





MENUS

MAJOR

Major Command Groups

SYSTEM: ITAUTEC

Select one of the following:

- | | |
|-------------------------------|-----------|
| 1. Select Command by Name | SLTCMD |
| 2. Verb Commands | VERB |
| 3. Subject Commands | SUBJECT |
| 4. Object Management Commands | CMDOBJCMD |
| 5. File Commands | CMDFILE |
| 6. Save and Restore Commands | CMDSAVRST |
| 7. Work Management Commands | CMDWRKMGT |
| 8. Data Management Commands | CMDDTAMGT |
| 9. Security Commands | CMDSEC |
| 10. Print Commands | CMDPRT |
| 11. Spooling Commands | CMDSPL |

More ...

Selection or command

====> _____

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





Help

Conforme a posição do cursor, auxiliando

- Significado de partes de qualquer tela
- Escolha de opções de um menu
- Seleção de valores de parâmetros
- Preenchimento de telas com lacunas

F2=Extended Help

F11=Search Index





Laboratórios



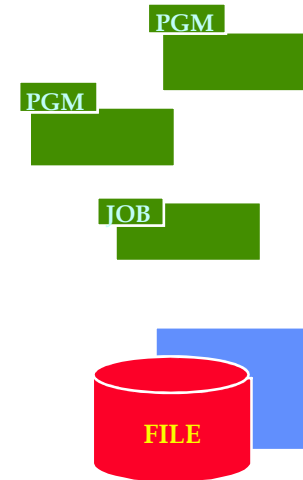


Gerenciamento de Objetos





Objetos



DESCRIÇÃO DO OBJETO

Parte Funcional do Objeto

(Informações armazenadas no objeto)

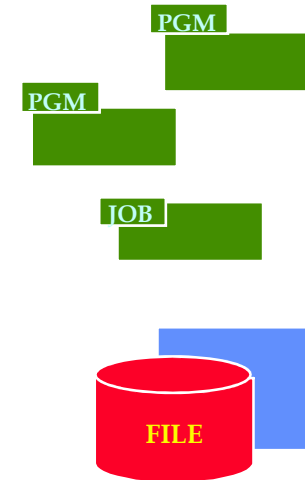
- Membros de Arquivos Físicos (Registros de Dados)
- Membros de Arquivos Lógicos (Access Paths)
- Programa (Instruções do Programa)



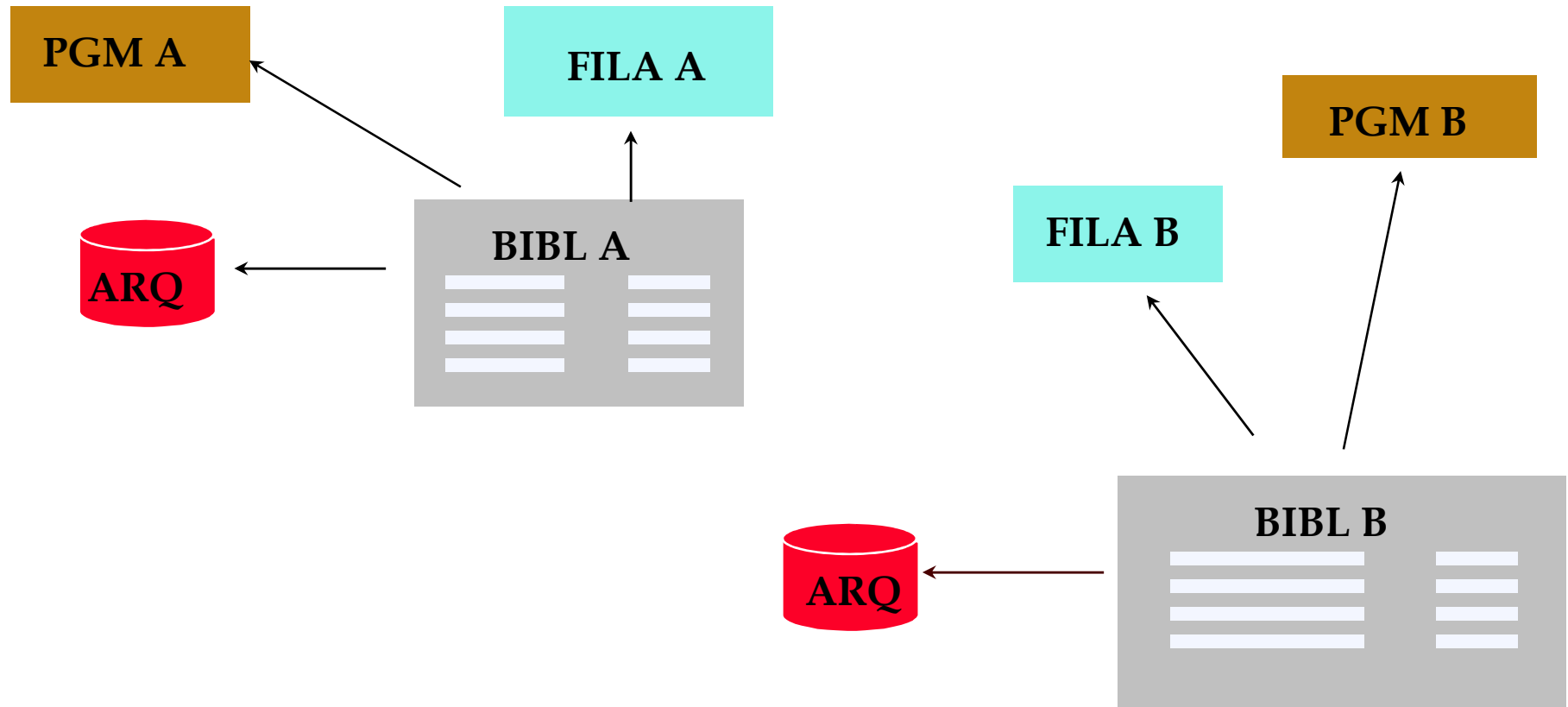


Descrição do Objeto

- Nome
- Biblioteca
- Tipo do Objeto
- Atributos (PF, LF)
- Owner (Proprietário)
- Autorização Pública
- Data/Hora da Última Atualização
- Data/Hora da última operação de SAVE
- Data/Hora da Última operação de RESTORE
- Texto Descritivo
- Tamanho em bytes



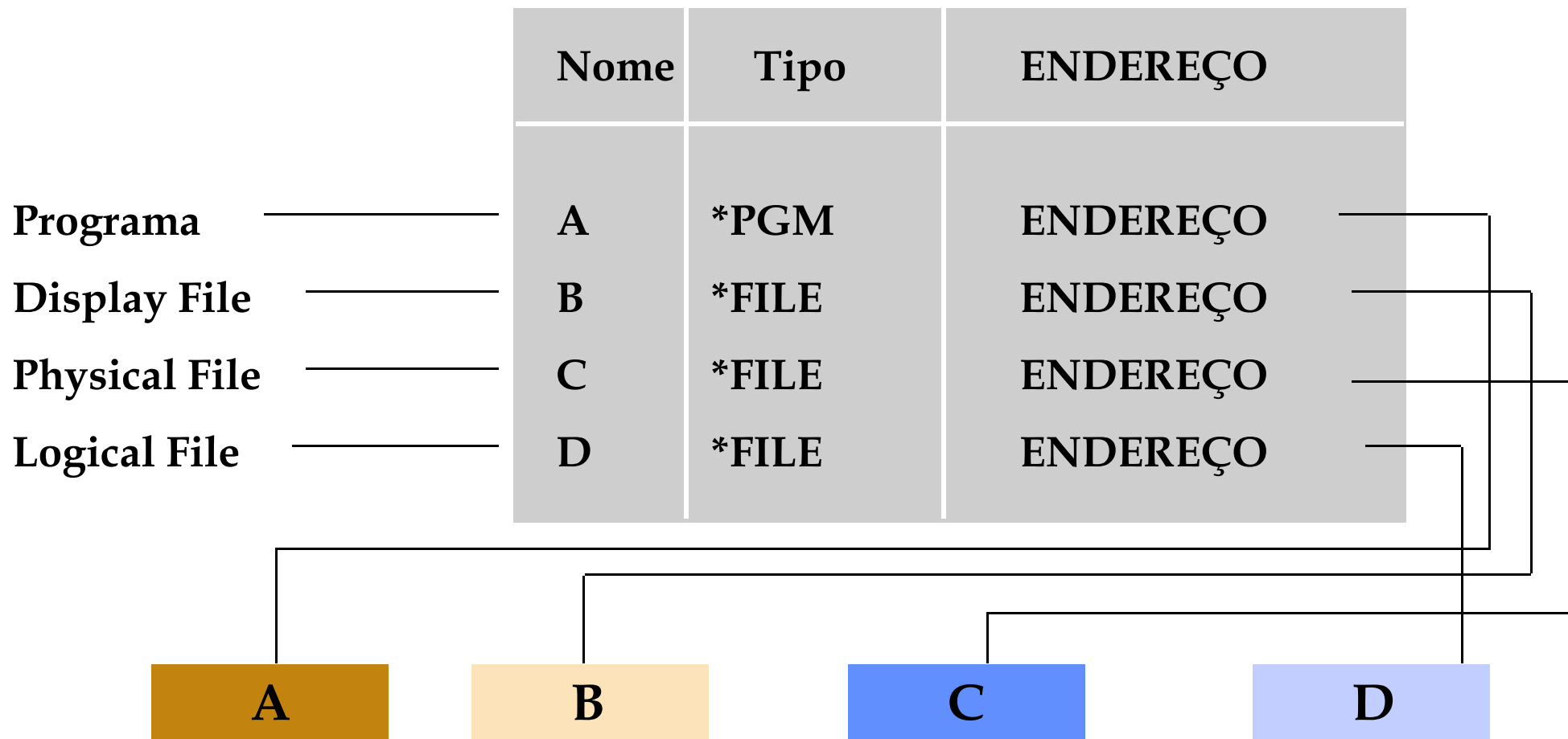
Bibliotecas



Efetua o agrupamento de objetos relacionados.



Bibliotecas



Biblioteca - Conjunto de Nomes e Endereços de Objetos.





Bibliotecas

- **SISTEMA**

- » Organiza informações necessárias para o sistema executar as tarefas.

- **USUÁRIO**

- » Organiza os objetos do Usuário.
 - Fornecidas pela IBM
 - Criadas pelo Usuário

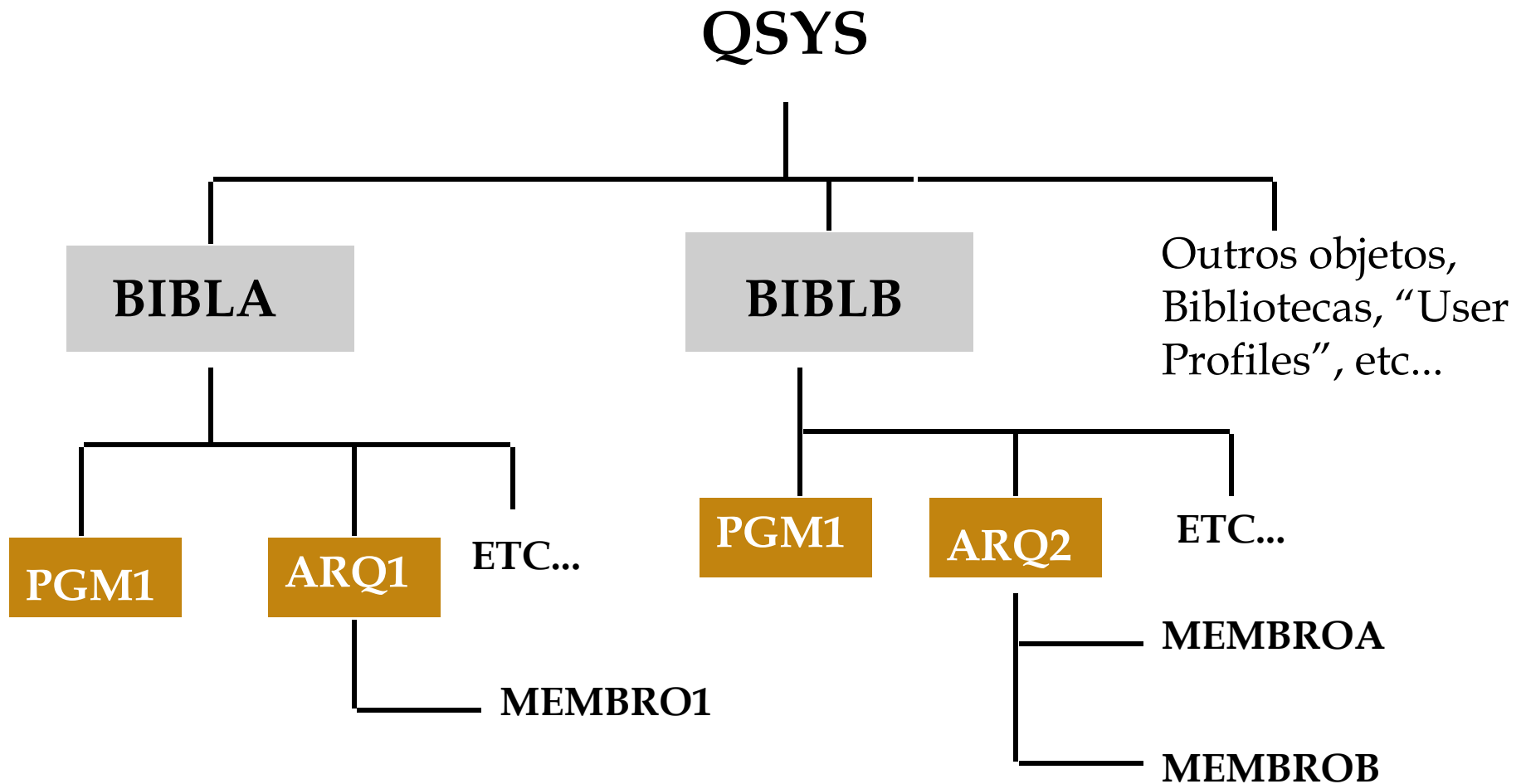
- **PRODUTO**

- » Contém os programas produtos e seus objetos.



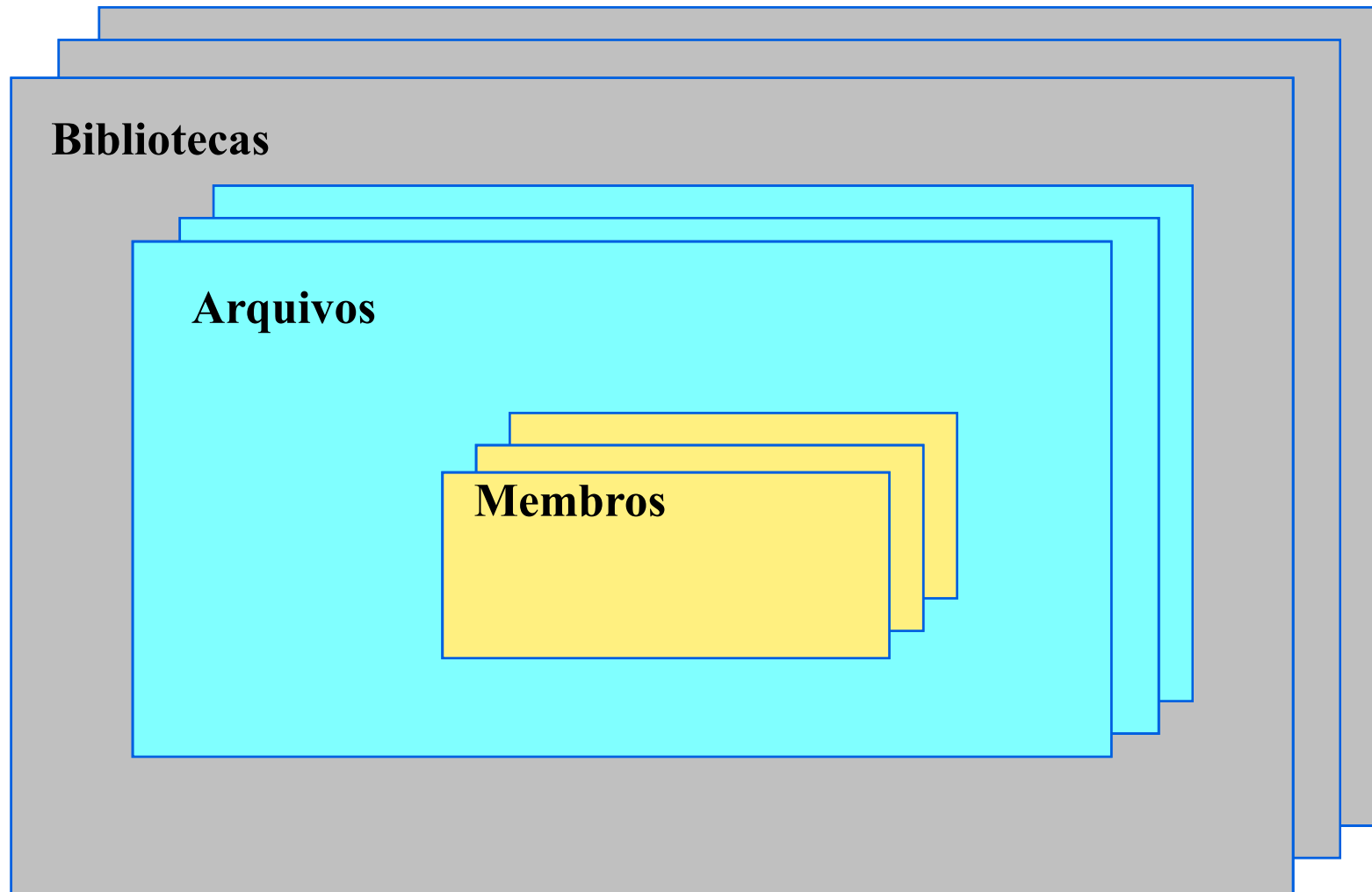


Estrutura de bibliotecas e Objetos



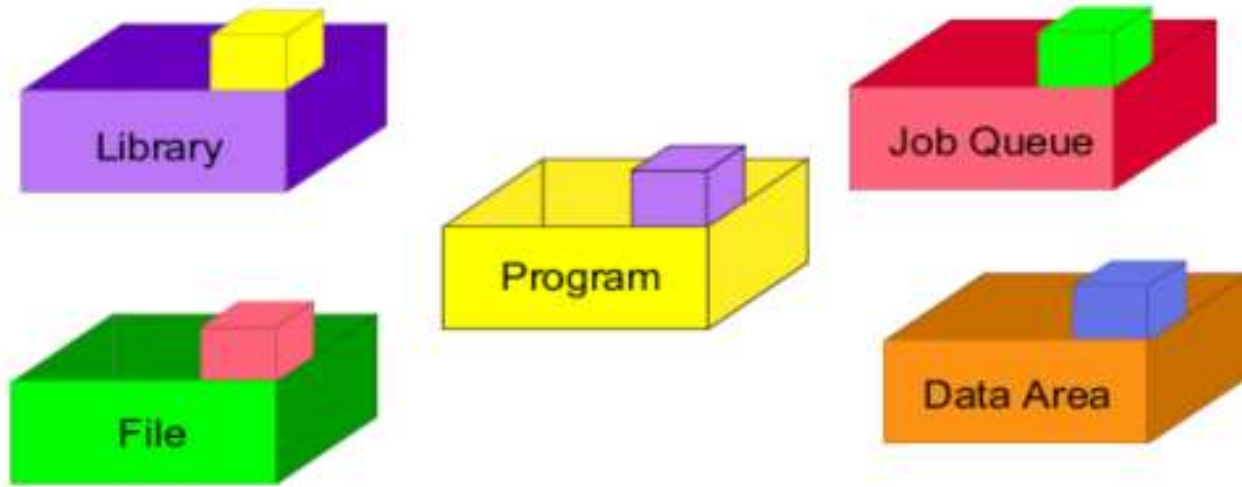


Hierarquia de Objetos



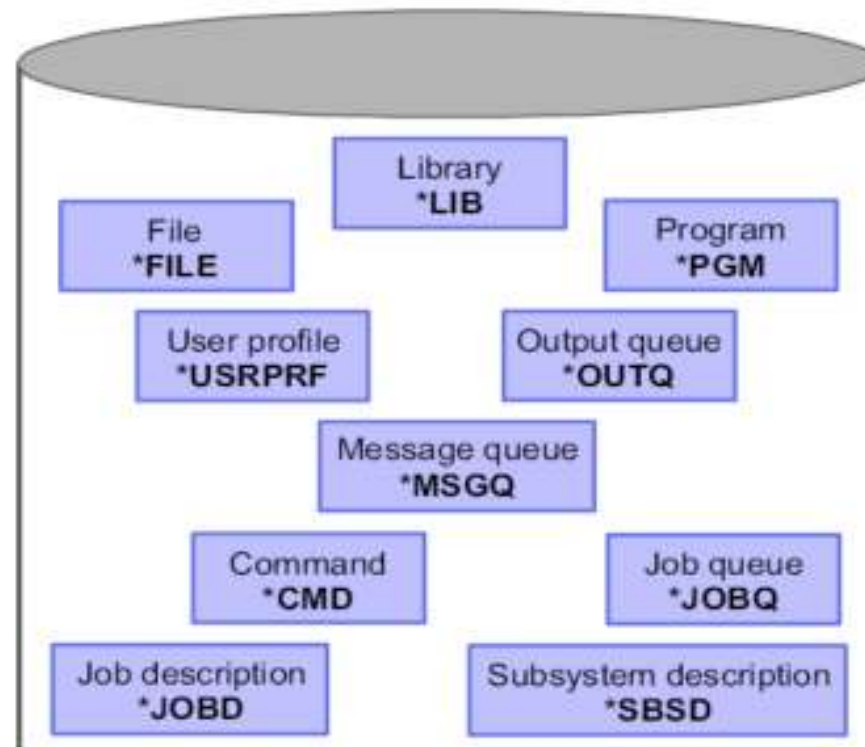


Encontrando Objetos



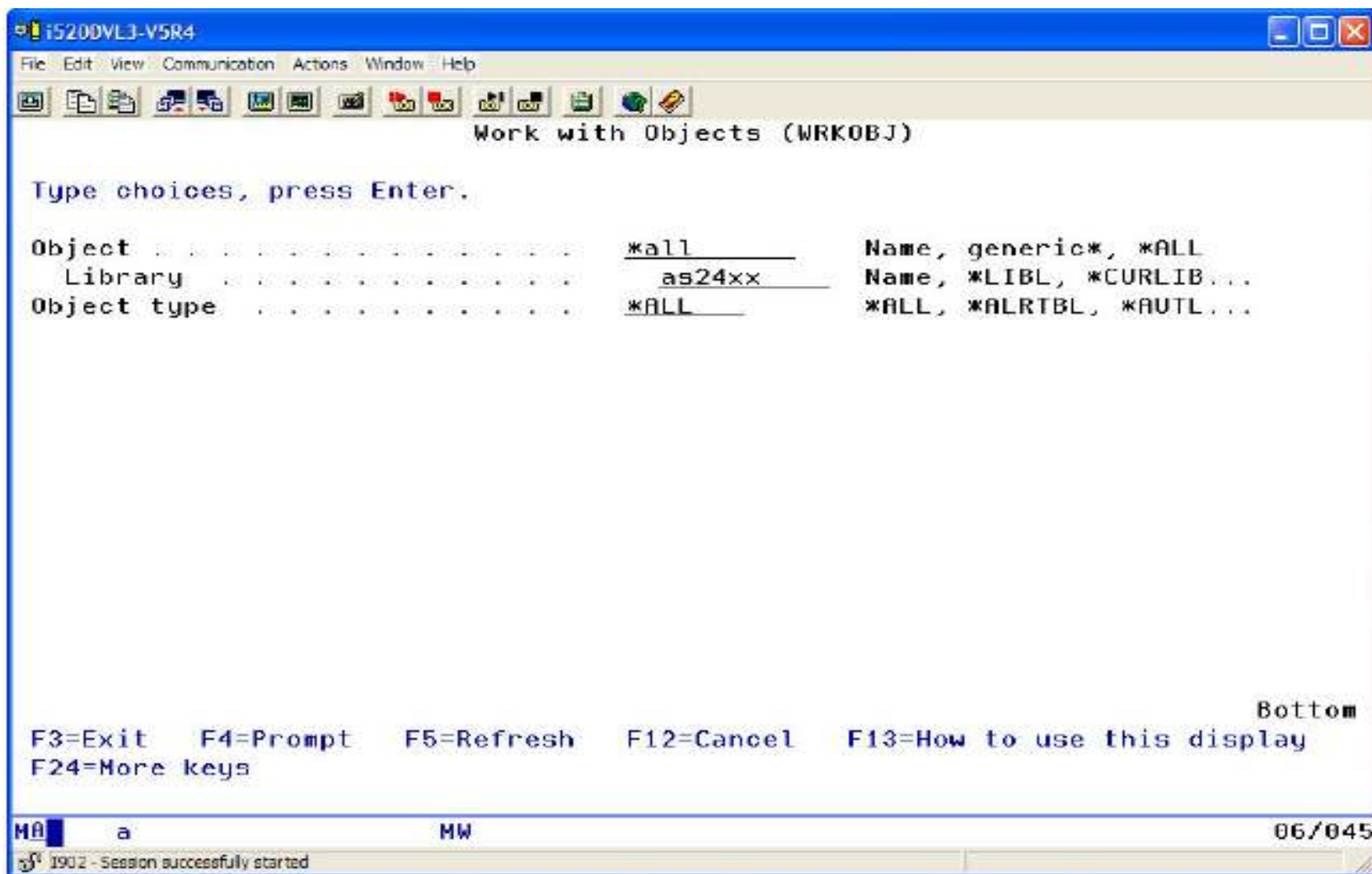


Encontrando Objetos



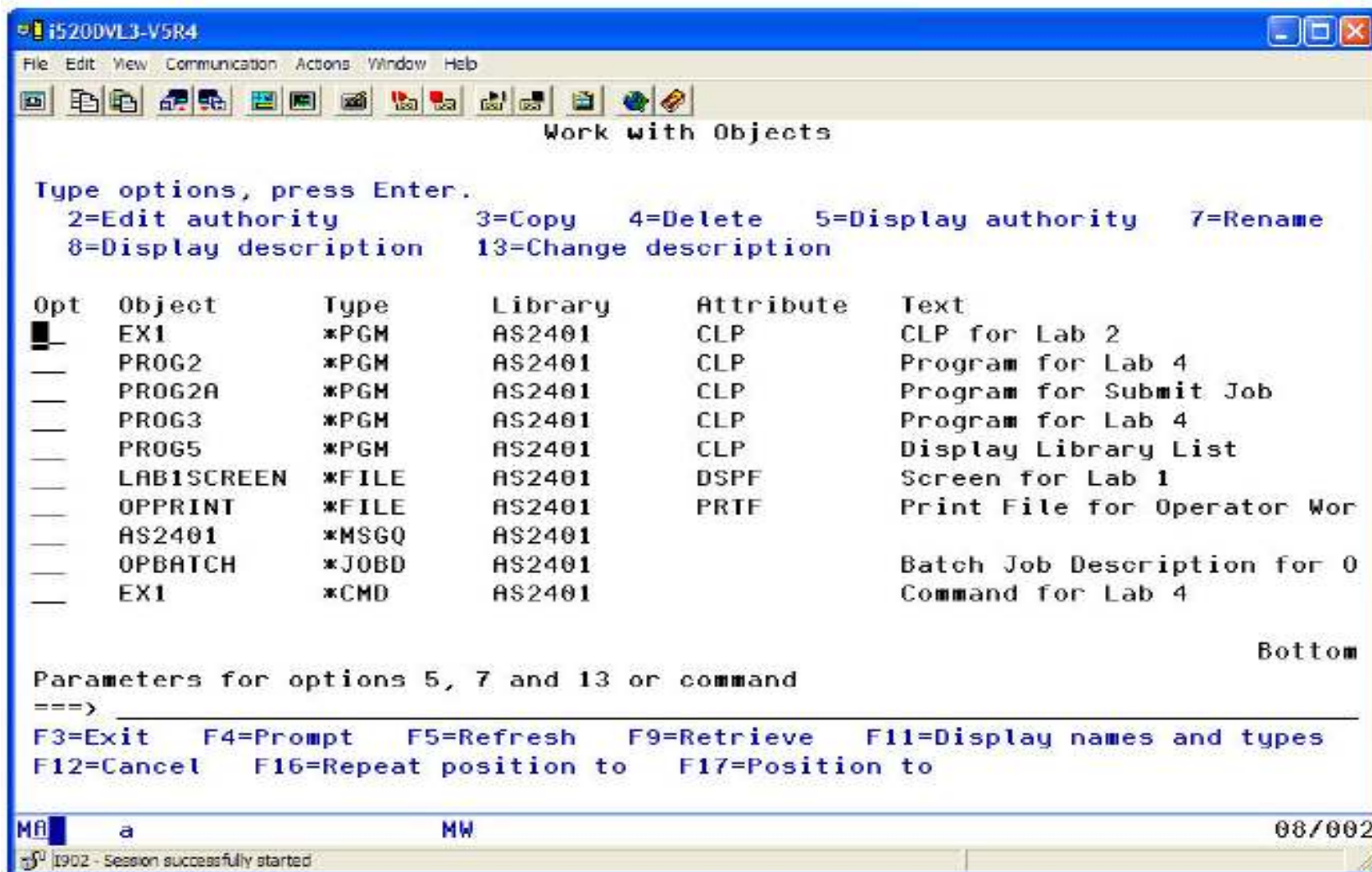


Encontrando Objetos



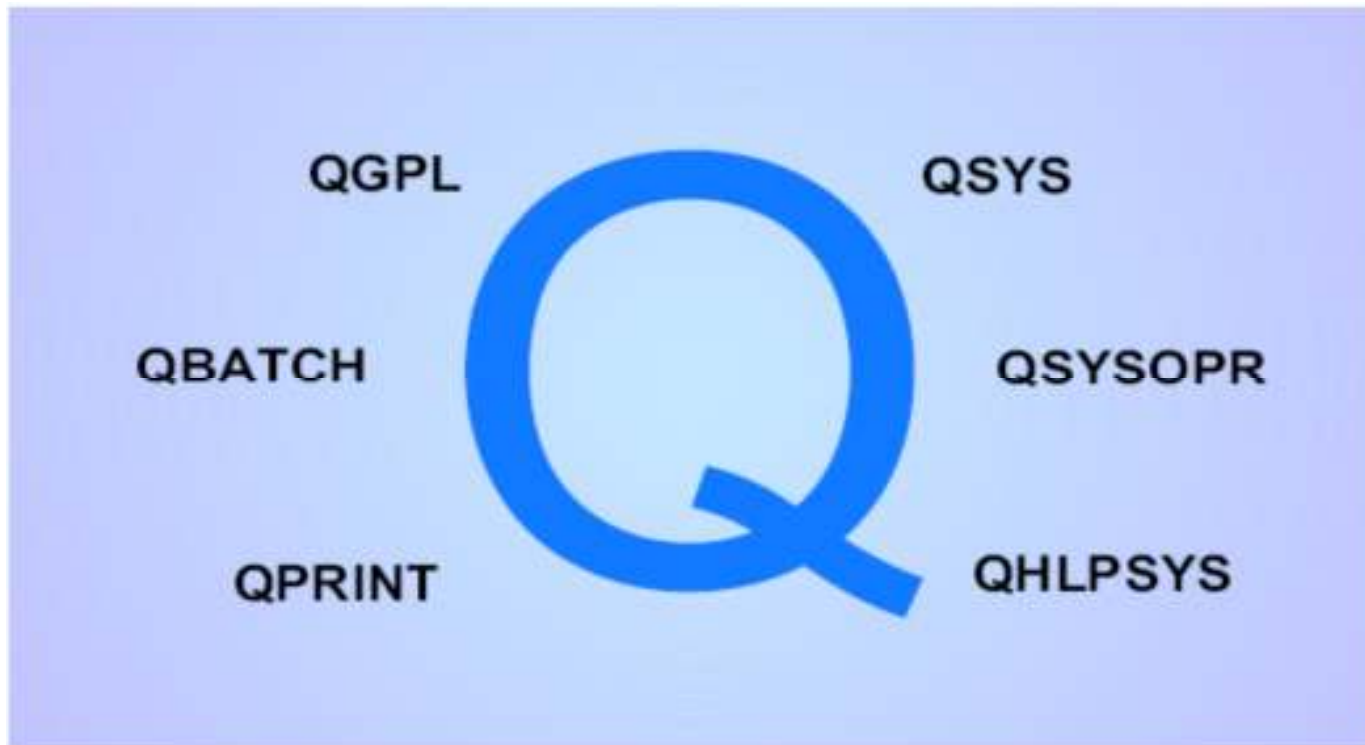


Encontrando Objetos





Objetos fornecidos pela IBM





Atributos de um objeto

Session A - [24 x 80]

File Edit View Communication Actions Window Help

Display Object Description (DSPOBJD)

Type choices, press Enter.

Object		Name, generic*, *ALLUSR...
Library	*LIBL	Name, *LIBL, *USRLIBL...
Object type		*ALL, *ALRTBL, *AUTL...
	+ for more values	
Detail	*BASIC	*BASIC, *FULL, *SERVICE
ASP device:		
Device	*	Name, *, *ALLAVL...
Search type		*ASP, *ASPGRP
Output	*	*, *PRINT, *OUTFILE

Bottom

F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display

F24=More keys

Parameter OBJ required.

MA a MW 15/040

1902 - Session successfully started





Bibliotecas Fornecidas

- Não podem ser eliminadas ou renomeadas
- Pertencem ao Usuário **SECURITY OFFICER**
 - QSYS
 - QGPL (General Purpose Library)
- Devem estar em todas **LIBRARY LIST**





Bibliotecas Fornecidas

QTEMP

Criada automaticamente para cada JOB iniciado no sistema. Deixa de existir assim que o JOB termina sua execução. Útil para o armazenamento de objetos temporários.

QSPL

Biblioteca para Spooling

QRPG

Produto RPG/400

QSRV

Biblioteca de Serviço - Uso restrito IBM

QRECOVERY

Biblioteca de Recuperação - Uso restrito IBM





Bibliotecas de Usuário

- Podem ser criadas para adequar o ambiente de:
 - Aplicações
 - Departamentos
 - Usuários
 - Desenvolvimentos
- Ou diferenciar
 - Produção (Default)
 - Teste (Útil em ambiente de Teste)





Nomes Simples X Qualificados

Nomes Simples:	PGM1
	X
Nome Qualificado:	BIBL1/PGM1

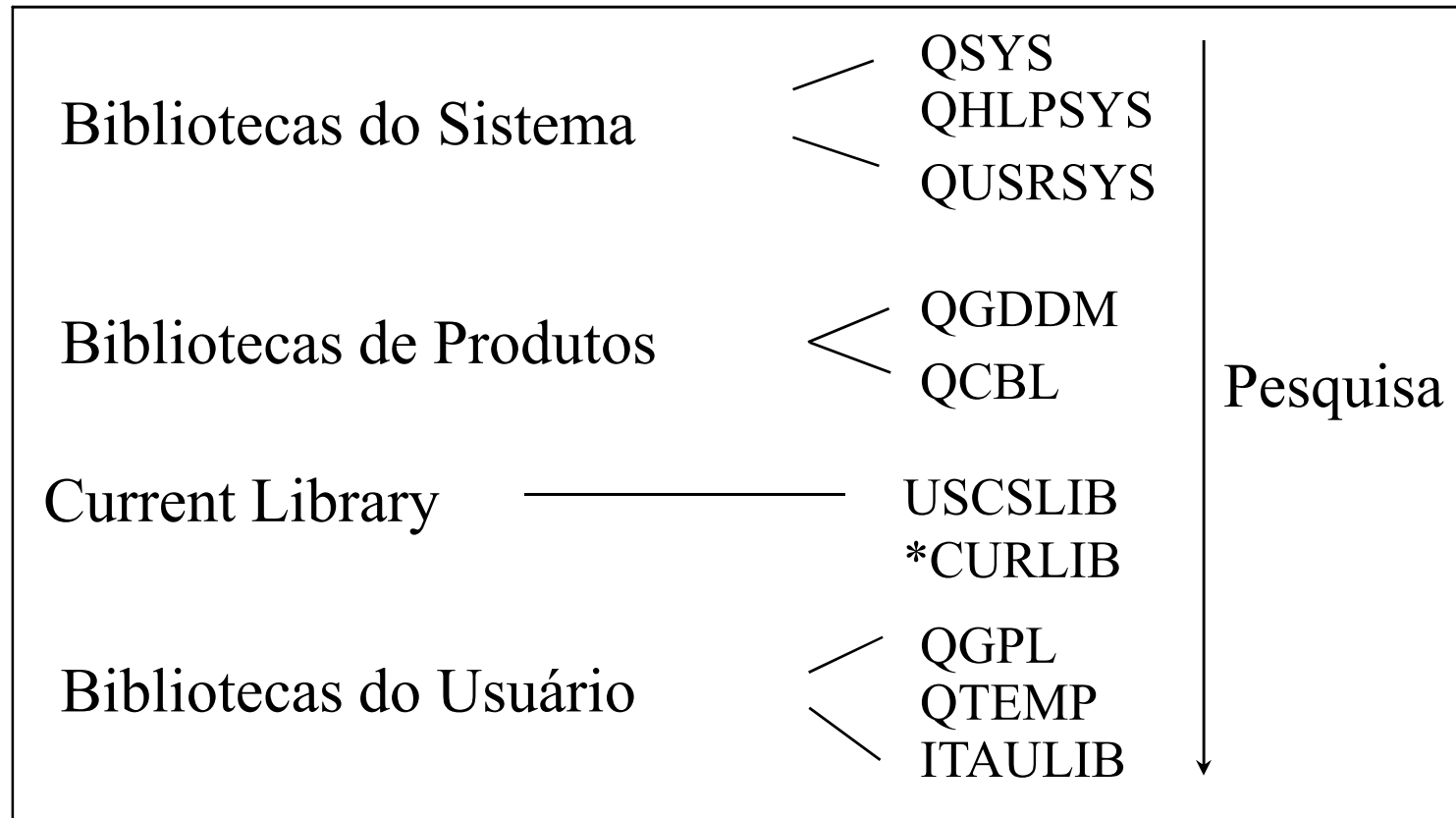
Nome da Biblioteca

Nome do Programa





Library List (*LIBL)



- Utilizada pelo sistema para acessar objetos com acesso não-qualificado





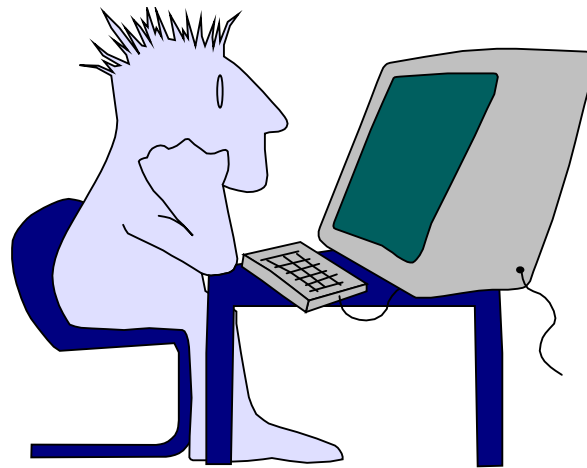
Comandos - Library List

- Editar a Library List **EDTLIBL**
- Adicionar biblioteca **ADDLIBL**
- Trocar a Current Library **CHGCURLIB**
- Exibir a Library List **DSPLIBL**





Laboratórios





Desativando o Sistema

- Comando "PWRDWNSYS" (Power Down System)
- Usando a chave "Power On/Off"
- Usando a chave de Emergência
- Usando o menu POWER
- Ativando o Scheduler do Sistema





Comando PWRDWN SYS

- **Opção *CNTRLD (Controlado)**
 - O processo continua até o término de todos os Jobs ativos
 - O Sistema é desligado após o término dos Jobs ativos
 - Opcional – Limite de Tempo (Delay)
- **Opção *IMMED (Imediato)**
 - O processamento é paralizado
 - Jobs ativos são cancelados imediatamente
 - Os arquivos dos jobs ativos podem ficar parcialmente atualizados





Ativando o menu POWER

MAIN

AS/400 Main Menu

SYSTEM: QUALIT

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. User support and education
11. PC Support Tasks

90. Sign Off

Selection or command

GO POWER

====>

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





Menu Power

POWER

Power On and Off Tasks

SYSTEM: QUALIT

To select one of the following, type its number bellow and press Enter

1. Display power on and off Schedule
2. Change power on and off Schedule
3. Power off the system immediately
4. Power off the system immediately and then power on

Type a menu option bellow

—

F1=Help

F3=Exit

F9=Command line

F12=Cancel





Ativando o menu SETUP

MAIN

AS/400 Main Menu

SYSTEM:QUALIT

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. User support and education
11. PC Support Tasks

90. Sign Off

Selection or command

GO SETUP

====>

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

F23= Set initial menu





Menu SETUP

SETUP

Set Up Your System

SYSTEM: QUALIT

To select one of the following, type its number bellow and press Enter

- 1. Change system options
- 2. Change passwords for IBM-supplied users
- 3. Clean cleanup options
- 4. Change power on and off
- 5. Device status

20. Backup tasks

Type a menu option bellow

—
F1=Help

F3=Exit

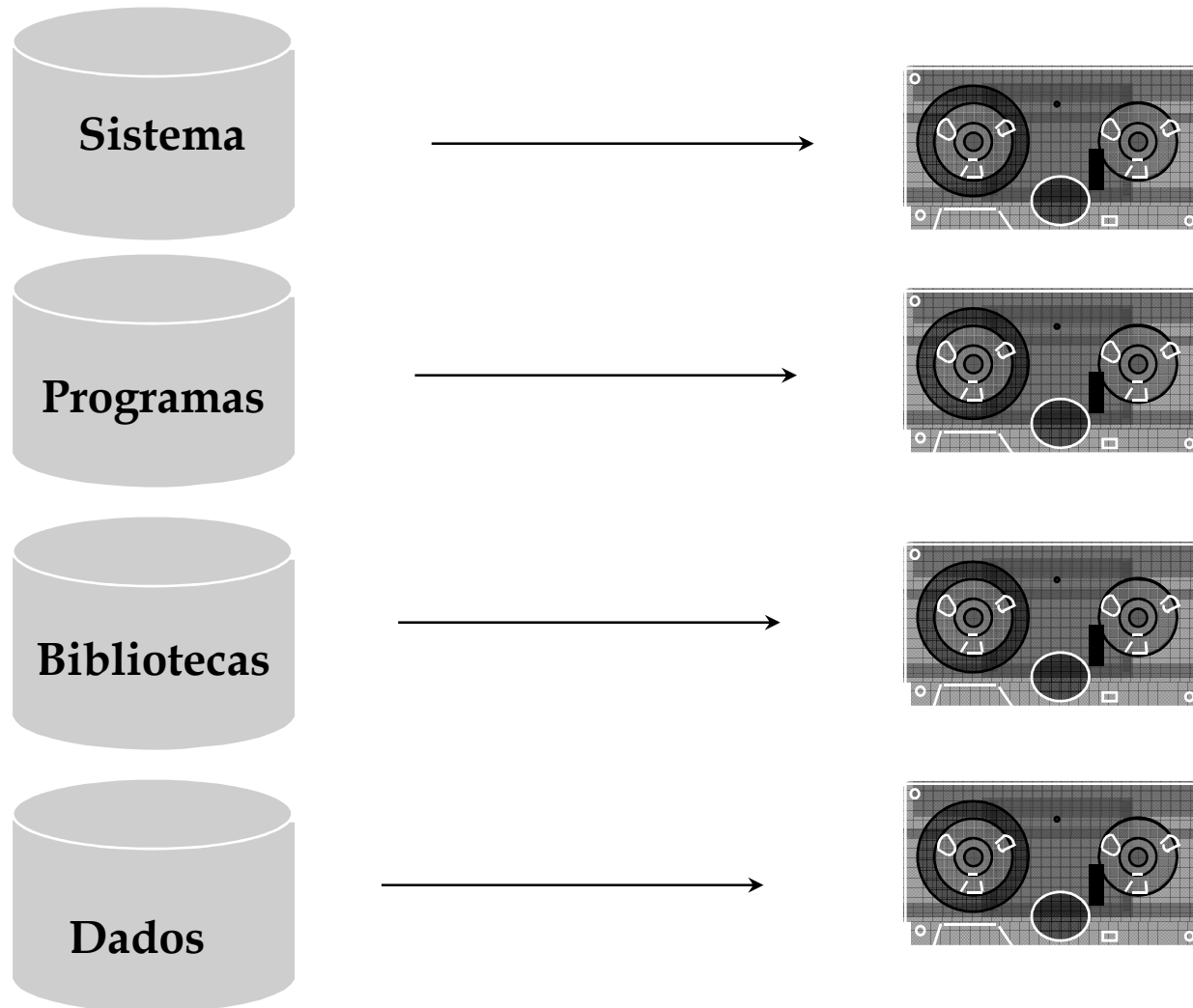
F9=Command line

F12=Cancel



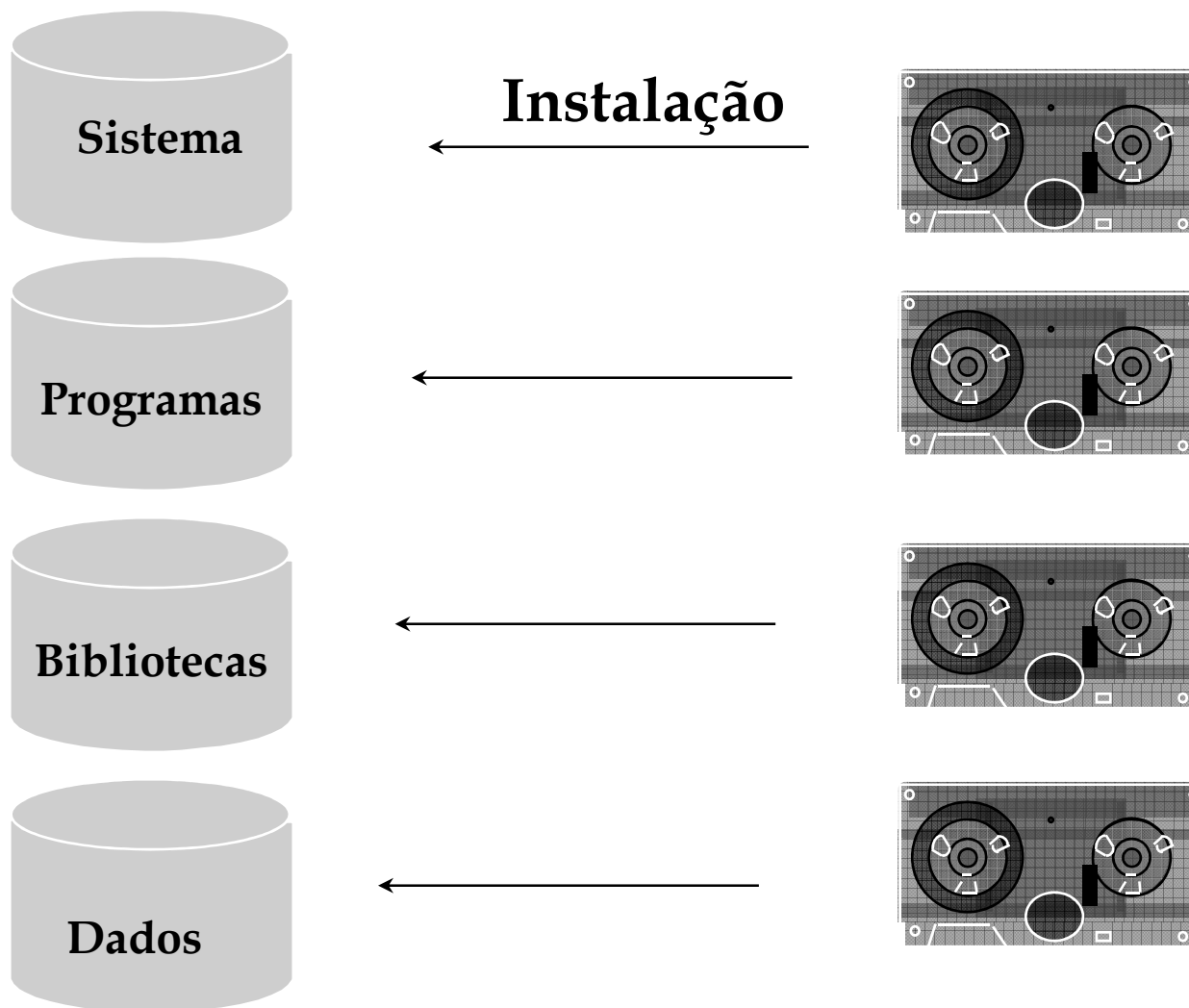


Operação de Save





Operação de Restore





Salvando uma Biblioteca – Exemplo

```
SAVLIB LIB(ITAULIB) DEV(TAP01) VOL(BKP01)
```

Restaurando uma Biblioteca – Exemplo

```
RSTLIB LIB(ITAULIB) DEV(TAP01) VOL(BKP01)
```





Ativando o menu SAVE

MAIN

AS/400 Main Menu

SYSTEM QUALIT

Select one of the following:

1. User Tasks
2. Office Tasks
3. General system tasks
4. Files, libraries, and folders
5. Programming
6. Communiations
7. Define or hange the system
8. Problem handling
9. Display a menu
10. User support and education
11. PC Support Tasks

90. Slgn Off

Selection or command

===> GO SAVE

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





Menu SAVE

SAVE

Save

SYSTEM QUALIT

Select one of the following:

1. Files
2. Libraries
3. Documents and folders
4. Programs
5. Other objects
6. Changed objects only
7. Licensed programs
8. Security data
9. Storage

20. All libraries other than system library
21. Entire system

Selection or command

====>

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





Ativando o menu RESTORE

MAIN

AS/400 Main Menu

SYSTEM: QUALIT

Select one of the following:

1. User Tasks
2. Office Tasks
3. General system tasks
4. Files, libraries, and folders
5. Programming
6. Communiations
7. Define or hange the system
8. Problem handling
9. Display a menu
10. User support and education
11. PC Support Tasks

90. Slgn Off

Selection or command

GO RESTORE

===>

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

F23= Set initial menu





Menu RESTORE

RESTORE

Restore

SYSTEM: QUALIT

Select one of the following:

- 1. Files
- 2. Libraries
- 3. Documents and folders
- 4. Programs
- 5. Other objects
- 6. Licensed programs

- 20. All libraries other than system library
- 21. Entire system

- 50. Restore from System/36 format

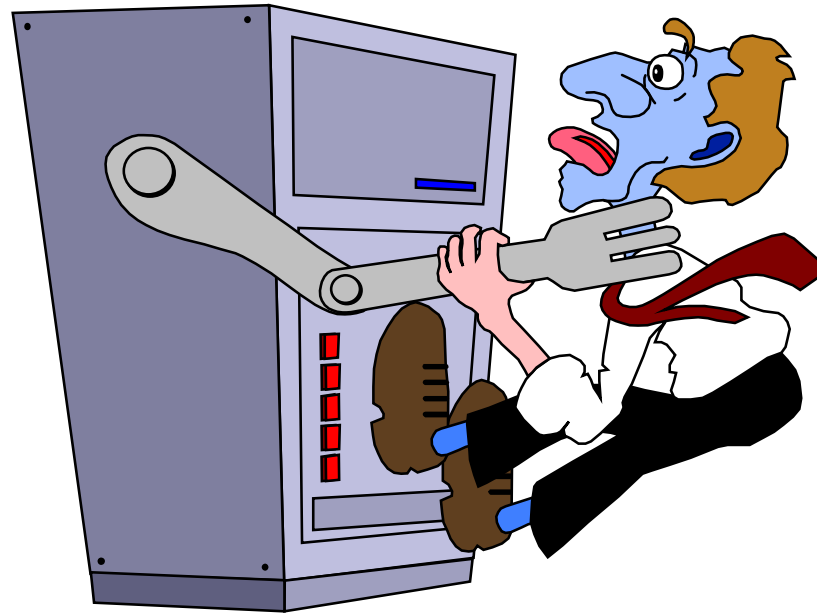
- 70. Related commands

Selection or command

====> _____

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





Laboratórios

