

When Worlds Collide – ISPF Tools for the Windows World

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Agenda

- Who is MIB?
- Introduction/Overview
- Mainframe E-Mail
- Network Printing
- File Handling
 - Accessing Mainframe files from Windows
 - Creating Windows Server Files from ISPF

Who is MIB?

- A membership corporation owned by approximately 470 member insurance companies in the US and Canada.
- Organized in 1902 to provide core fraud protection services to all aspects of the insurance industry, including, life, health, critical illness, long-term care and disability-income insurance.
- Provide members with shared, searchable databases to support the underwriting process. (Think “insurance credit bureau”)
- Adhere to all privacy and disclosure regulations, including FCRA (15 U.S.C. § 1681 et seq.) HIPAA (Public Law 104-191, 1996) and HITECH Act (H.R.1/P.L.-111-5, 2009)

Introduction/Overview

- ISPF is the #1 SYSPROG tool.
- Most of us have a Windows device on our desk, network-attached printers near us, and communicate via e-mail.
- Often, the printers are not mainframe attached
 - High cost of products/infrastructure
- We use files on the Mainframe as well as on Windows Servers
- Getting Files from the Mainframe may be cumbersome.
 - FTP (or IND\$FILE, or cut/paste) then:
 - Mail as attachment
 - Print to printer
 - Save to server

Introduction/Overview (cont.)

- A Better Way!
- Many tools available on the Internet which can be used as-is or tailored to your needs.
- Usually ISPF edit macros or TSO commands to assist in the integration of ISPF/TSO into the Windows world.
- The following Web sites are of particular use:
 - Marks Zelden's: <http://home.flash.net/~mzelden/mvsutil.html>
 - Dave Alcock's PlanetMvs:
<http://www.planetmvs.com/index.html>
 - Lionel Dyck's freeware site:
<http://www.lbdsoftware.com/index.htm>

Mainframe E-Mail

- XMITIP by Lionel Dyke
- Freeware
- Very flexible
- Provides e-mail of text and attachments of files, and with additional features, will convert files to other formats such as PDF
- Uses the SMTP function of IBM Communications Server

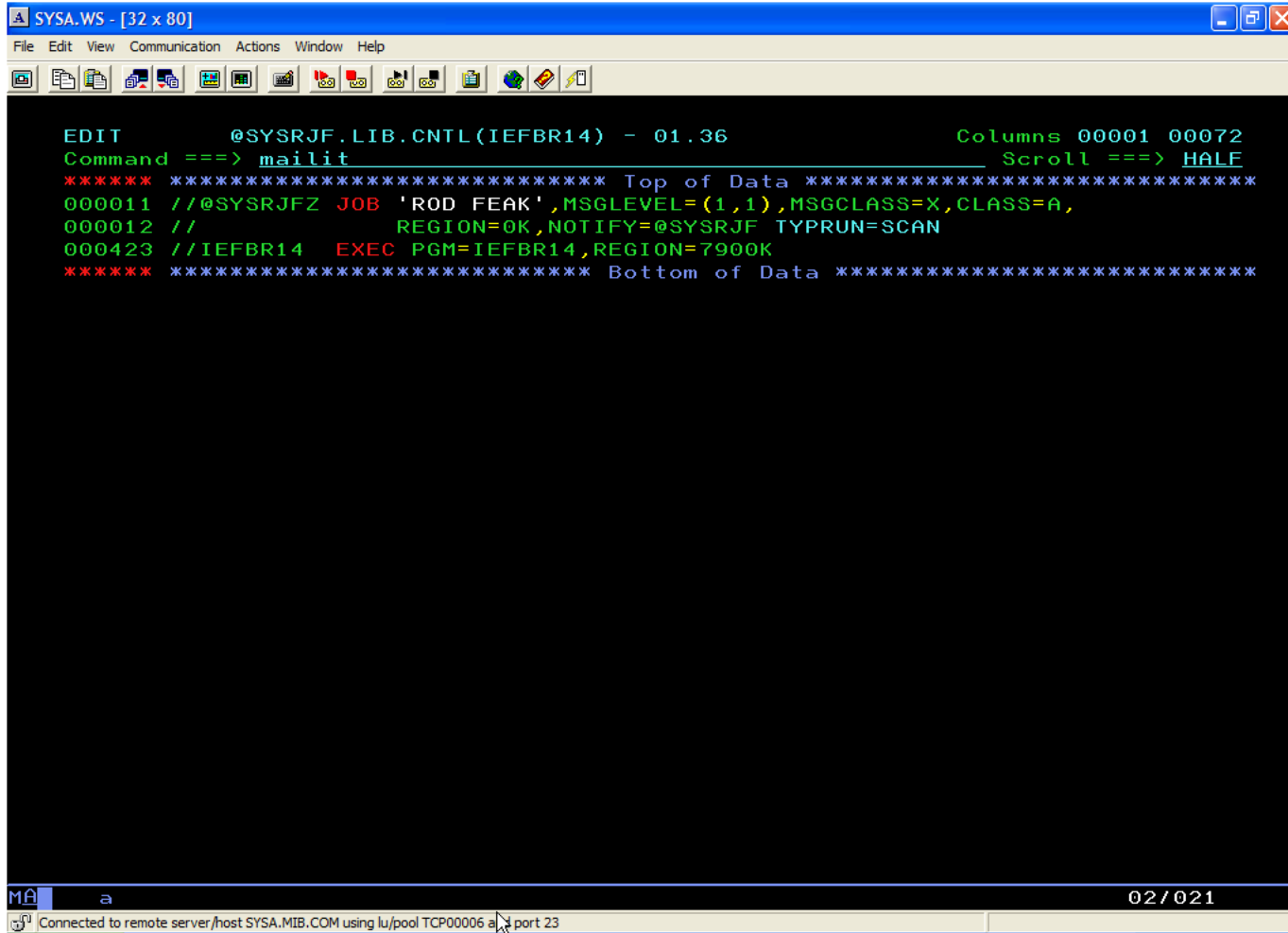
Mainframe E-Mail (cont.)

```
SYSA.WS - [32 x 80]
File Edit View Communication Actions Window Help
----- E-Mail Dialog 10.10 -----
Command ==> _
To Address ==> rfeak@mib.com
CC Address ==>
BCC Address ==>
AddressFile ==>
Subject ==> Test Message
Message/DS/DD/*/? ==>
Edit Message DSN ==> Yes or No
Attachment DSN/DD/? ==> lib.cntl(iefbr14)
File Name in e-Mail ==>
Format (?=prompt) ==>
Settings ==> Yes or No
Configuration File ==>
Default Settings ==> Yes or No to set From, ReplyTo, etc.
Delivery Settings ==> Yes or No (FollowUp, Import, Prior, Sens,
and Respond)
Execution Mode ==> ISPF I ISPF B Batch C Config P Prompt D Debug
Field level help available via PF1
MA b 02/015
Connected to remote server /host SYSA.MIB.COM using lu/pool TCP00045 and port 23
```


Mainframe E-Mail (cont.)

- With a little REXX coding and the SDSF REXX API one can create a more tailored look and feel...

Mainframe E-Mail (cont.)

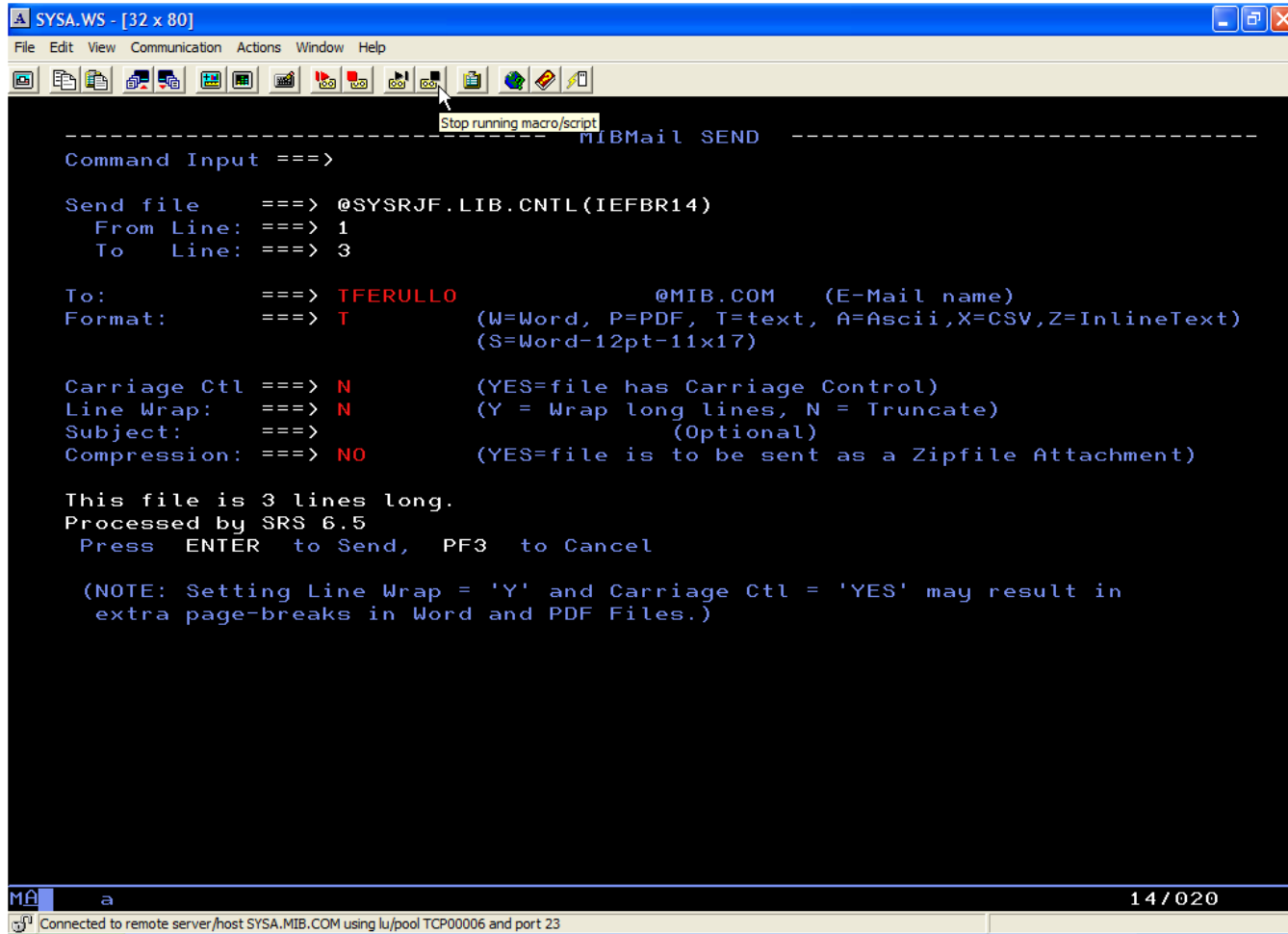


A screenshot of a terminal window titled "SYSA.WS - [32 x 80]". The window has a menu bar with "File", "Edit", "View", "Communication", "Actions", "Window", and "Help". Below the menu bar is a toolbar with various icons. The main area of the terminal displays the following text:

```
EDIT          @SYSRJF.LIB.CNTL(IEFBR14) - 01.36          Columns 00001 00072
Command ==> mailit          Scroll ==> HALF
***** Top of Data *****
000011 //@SYSRJFZ JOB 'ROD FEAK',MSGLEVEL=(1,1),MSGCLASS=X,CLASS=A,
000012 //              REGION=0K,NOTIFY=@SYSRJF TYPRUN=SCAN
000423 //IEFBR14 EXEC PGM=IEFBR14,REGION=7900K
***** Bottom of Data *****
```

At the bottom of the terminal window, there is a status bar showing "Má a" on the left and "02/021" on the right. Below the terminal window, a small text box indicates: "Connected to remote server/host SYSA.MIB.COM using lu/pool TCP00006 a port 23".

Mainframe E-mail (cont.)



```
----- MIBMail SEND -----
Command Input ==>

Send file    ==> @SYSRJF.LIB.CNTL(IEFBR14)
  From Line: ==> 1
  To   Line: ==> 3

To:          ==> TFERULLO           @MIB.COM   (E-Mail name)
Format:      ==> T                 (W=Word, P=PDF, T=text, A=Ascii,X=CSV,Z=InlineText)
                                     (S=Word-12pt-11x17)

Carriage Ctl ==> N                 (YES=file has Carriage Control)
Line Wrap:   ==> N                 (Y = Wrap long lines, N = Truncate)
Subject:     ==>                   (Optional)
Compression: ==> NO                (YES=file is to be sent as a Zipfile Attachment)

This file is 3 lines long.
Processed by SRS 6.5
Press ENTER to Send, PF3 to Cancel

(NOTE: Setting Line Wrap = 'Y' and Carriage Ctl = 'YES' may result in
extra page-breaks in Word and PDF Files.)

MIB a 14 / 020
Connected to remote server/host SYSA.MIB.COM using lu/pool TCP00006 and port 23
```

Mainframe E-Mail (cont.)

- At MIB, this solution utilizes a REXX ISPF Edit macro coupled with a background REXX SDSF-based writer to process both TSO and batch mail
- See SHARE – Seattle Presentation #2341: “SDSF Rexx in a Production Environment – User Experience” for a look at how this might be done.

Network Printing

- IBM Communications Server provides the TSO LPR command to print to a network-attached printer.
- Format:

```
>>-LPR--data_set_name-----+-----+-----<X
      | .-----|
      | v                | |
      '-(----| Optional parameters |--'
```

where optional parameters specify things like the printer name and IP address, page layout, etc.

Network Printing (cont.)

- Dave Alcock's LANPRT Rexx ISPF Edit macro allows one to print a range of lines, or all lines, from a dataset to a LAN printer.
- It invokes the LPR command from the Rexx code.

Network Printing (cont.)

```

SYSYA.WS - [32 x 80]
File Edit View Communication Actions Window Help
EDIT @SYSRJF.LIB.CNTL(ABRINIT) - 01.01 Columns 00001 00072
Command ==> printit Scroll ==> HALF
***** Top of Data *****
==MSG> -CAUTION- Profile changed to CAPS ON (from CAPS OFF) because the
==MSG> data does not contain any lower case characters.
==MSG> -Warning- The UNDO command is not available until you change
==MSG> your edit profile using the command RECOVERY ON.
000100 //@SYSPJDF JOB 'PAUL DINEEN',MSGLEVEL=(1,1),MSGCLASS=X,CLASS=A,
000200 // REGION=0M,NOTIFY=@SYSPJD,TIME=1440
000300 //* INITIALIZE NON-SMS MANAGED DISK VOLUMES FOR ABR PROCESSING
000500 //INITV1 EXEC PGM=FDRABRM
000600 //SYSPRINT DD SYSOUT=*
000700 //ABRMAP DD SYSOUT=*
000900 //DISK1 DD VOL=SER=0SRST1,SPACE=(CYL,0),UNIT=3390
000910 //DISK2 DD VOL=SER=0SRST2,SPACE=(CYL,0),UNIT=3390
001000 //SYSIN DD *
001100 ABRINIT LIST=ALL,ENABLE=(ARCHIVE,OLDBKUP,SCRATCH),RETPD=60
001200 /*
001300 //
***** Bottom of Data *****

*EDIT
MA a 02/022
Connected to remote server/host SYSYA.MIB.COM using lu/pool TCP00056 and port 23 \\MIBDC4SVR\SYS-5655 on IP_172.16.10.143

```

Network Printing (cont.)

```

SYSA.WS - [32 x 80]
File Edit View Communication Actions Window Help
Mainframe LAN Printer Options Row 1 to 7 of 7
Command ==> _____

Optionally change the parameters below. When complete,
use PF3 to save the changes and print the file.
Type CANCEL on the command line to cancel the print.

Output Parameters:

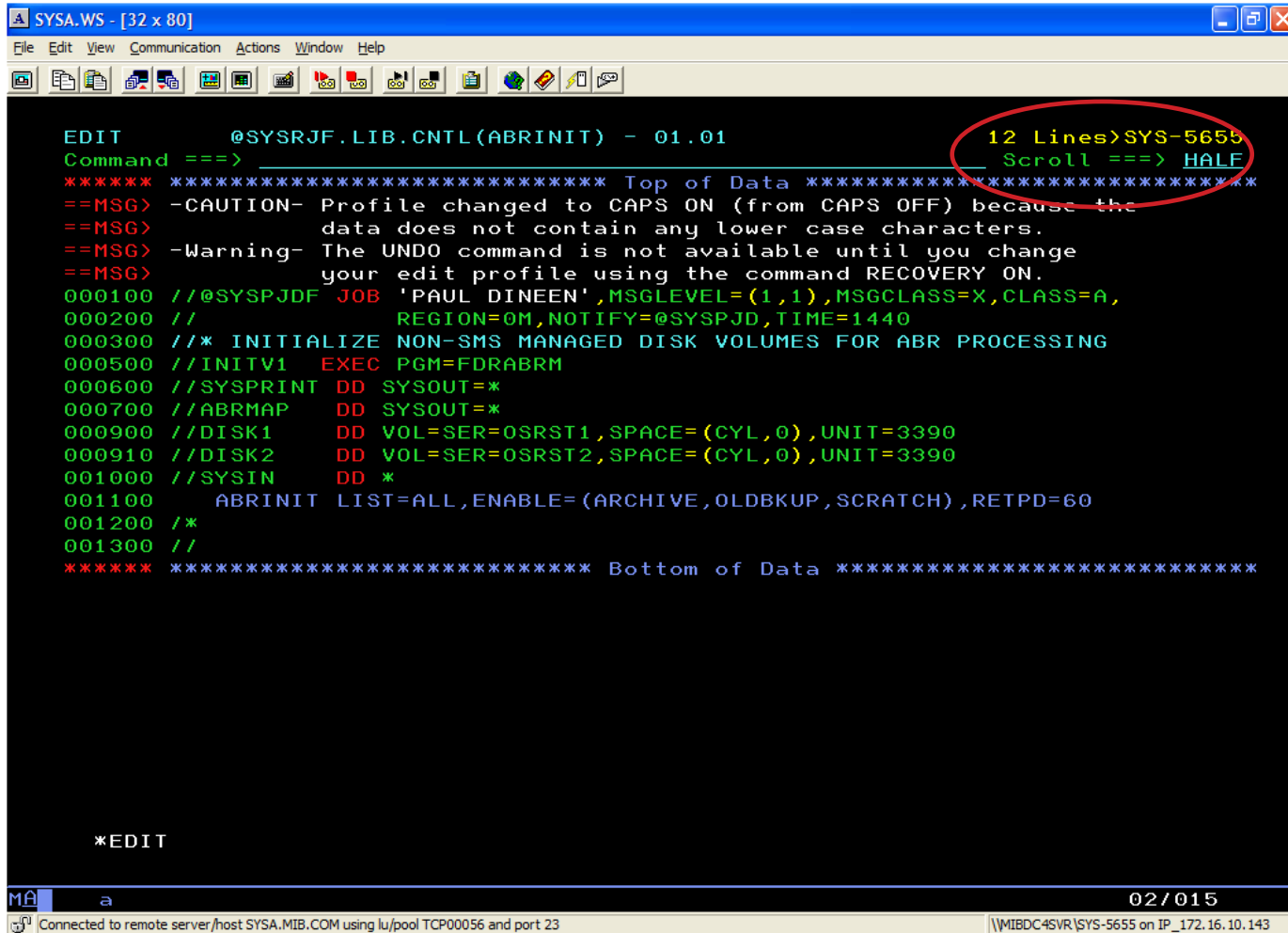
Dataset has Carriage Control ==> N (Y or N)
Format ==> L (P=Portrait, L=Landscape or
S=Landscape 11x17)

Select a printer
( / ) Printer Name Printer IP Default Location
- KS-4240 172.16.10.121
- OPR-2035 172.16.10.136 BRAINTREE-NOC
- LAN-5655 172.16.10.141 LAN
- PQC-5655 172.16.10.142 PQC
- SYS-5655 172.16.10.143 * SYSTEMS
- APD-5655 172.16.10.144 APD
- MLR-5655 172.16.10.145 MLR
***** Bottom of data *****

*EDIT

MA a 02/015
Connected to remote server/host SYSA.MIB.COM using lu/pool TCP00056 and port 23 \\MIBDC4SVR\SYS-5655 on IP_172.16.10.143
  
```


Network Printing (cont.)



```
SYSA.WS - [32 x 80]
File Edit View Communication Actions Window Help
[Icons]

EDIT @SYSRJF.LIB.CNTL(ABRINIT) - 01.01
Command ==>
***** Top of Data *****
==MSG> -CAUTION- Profile changed to CAPS ON (from CAPS OFF) because the
==MSG> data does not contain any lower case characters.
==MSG> -Warning- The UNDO command is not available until you change
==MSG> your edit profile using the command RECOVERY ON.
000100 //@SYSPJDF JOB 'PAUL DINEEN',MSGLEVEL=(1,1),MSGCLASS=X,CLASS=A,
000200 // REGION=0M,NOTIFY=@SYSPJD,TIME=1440
000300 /** INITIALIZE NON-SMS MANAGED DISK VOLUMES FOR ABR PROCESSING
000500 //INITV1 EXEC PGM=FDRABRM
000600 //SYSPRINT DD SYSOUT=*
000700 //ABRMAP DD SYSOUT=*
000900 //DISK1 DD VOL=SER=0SRST1,SPACE=(CYL,0),UNIT=3390
000910 //DISK2 DD VOL=SER=0SRST2,SPACE=(CYL,0),UNIT=3390
001000 //SYSIN DD *
001100 ABRINIT LIST=ALL,ENABLE=(ARCHIVE,OLDBKUP,SCRATCH),RETPD=60
001200 /*
001300 //
***** Bottom of Data *****

*EDIT

MA a 02/015
Connected to remote server/host SYSA.MIB.COM using lu/pool TCP00056 and port 23 \\MIBDC4SVR\SYS-5655 on IP_172.16.10.143
```

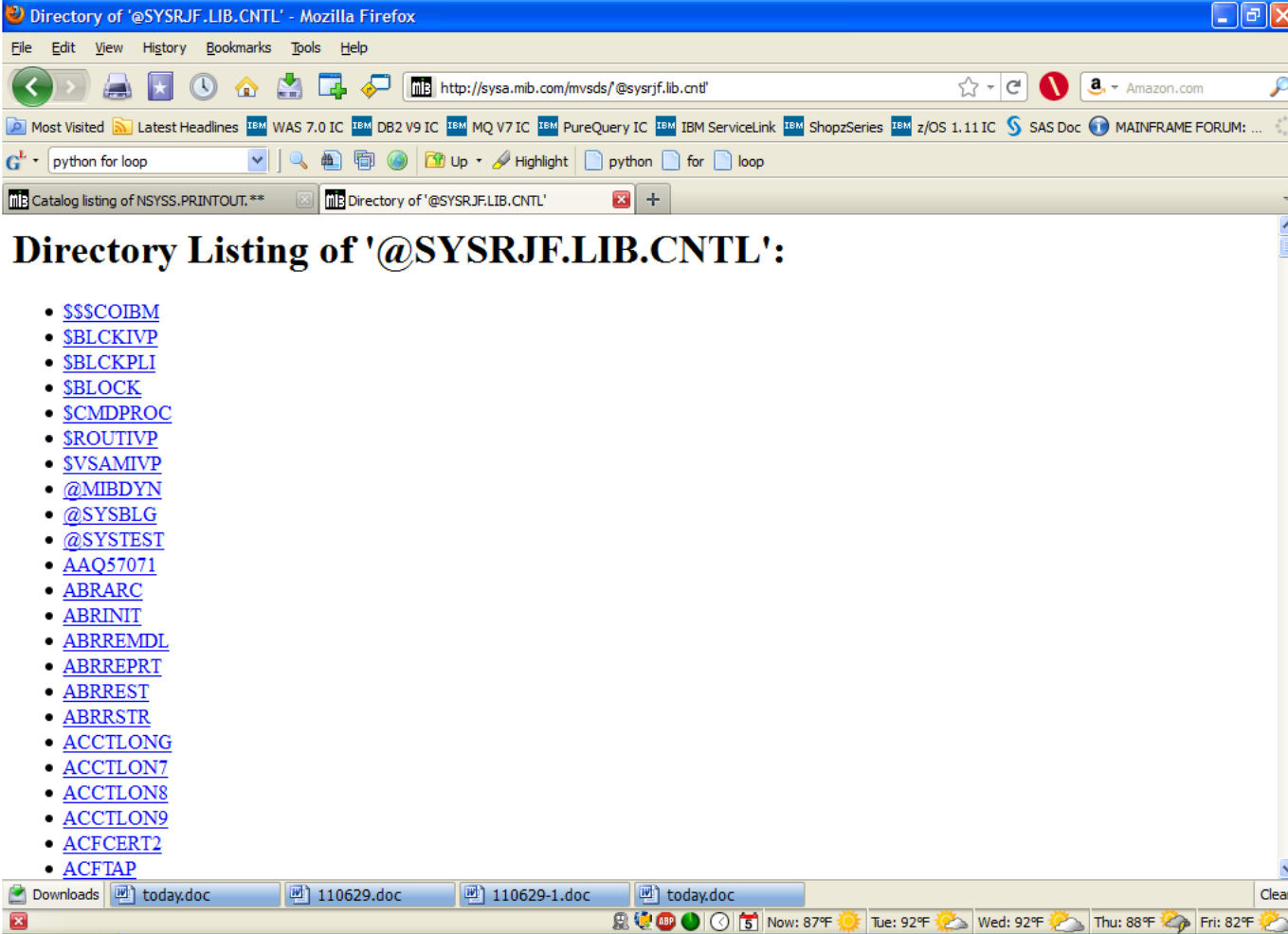
Accessing Mainframe Files from Windows

- IBM DSF (Distributed File Services) offers an SMB Server.
- Mainframe data can be offered to a Windows domain.
- The Mainframe looks like a Windows server to a Windows PC.
- OS datasets or USS files/directories can be mapped to windows drives.
- See SC24-5916 *DFS Customization*

Accessing Mainframe Files from a Browser

- IBM HTTP Server (the z/OS one, not the Apache derivative provided with WebSphere 7) contains the GWAPI service for serving MVS datasets.
- Can be used to browse z/OS datasets, including PDS's

Accessing Mainframe Files from a Browser

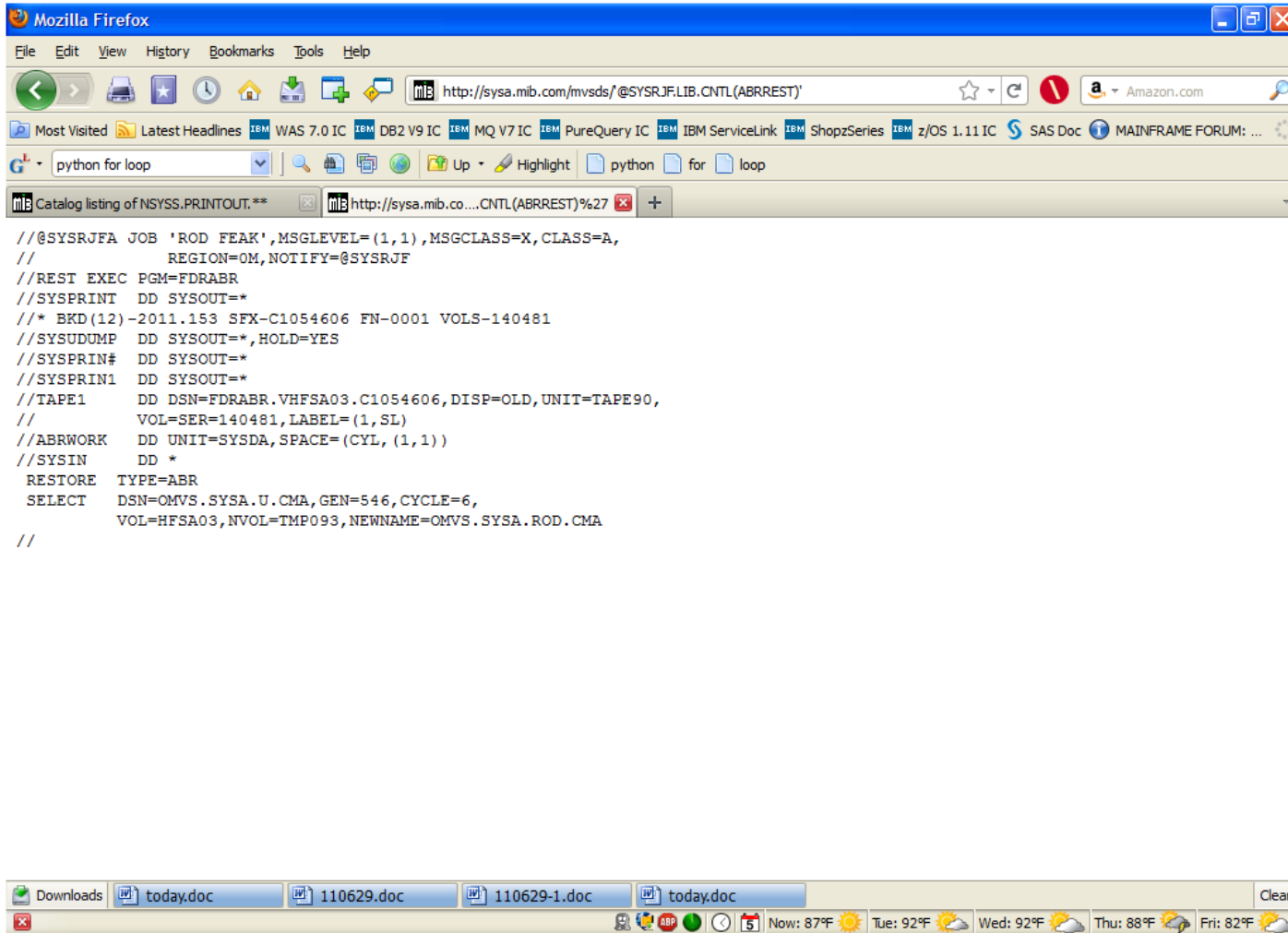


The screenshot shows a Mozilla Firefox browser window with the address bar containing the URL `http://sysa.mib.com/mvds/@sysrjf.lib.cntl'`. The browser's menu bar includes File, Edit, View, History, Bookmarks, Tools, and Help. The address bar also shows a search bar with the text 'python for loop' and a search button. The browser's toolbar includes buttons for Back, Forward, Home, Stop, Reload, Print, and a search icon. The browser's status bar shows the text 'Catalog listing of NSYSS.PRINTOUT.**' and 'Directory of '@SYSRJF.LIB.CNTL''. The main content area displays a directory listing of files and subdirectories, each preceded by a blue dot and a blue underline. The files and subdirectories listed are: `$$$COIBM`, `$BLCKIVP`, `$BLCKPLI`, `$BLOCK`, `$CMDPROC`, `$ROUTIVP`, `$VSAMIVP`, `@MIBDYN`, `@SYSBLG`, `@SYSTEST`, `AAQ57071`, `ABRARC`, `ABRINIT`, `ABREMDL`, `ABRREPT`, `ABRREST`, `ABRSTR`, `ACCTLONG`, `ACCTLON7`, `ACCTLON8`, `ACCTLON9`, `ACFCERT2`, and `ACFTAP`. The browser's taskbar at the bottom shows several open documents: 'Downloads', 'today.doc', '110629.doc', '110629-1.doc', and 'today.doc'. The system tray at the bottom right shows the date and time as 'Now: 87°F' and a weather forecast for the next five days: 'Tue: 92°F', 'Wed: 92°F', 'Thu: 88°F', and 'Fri: 82°F'.

Directory Listing of '@SYSRJF.LIB.CNTL':

- [\\$\\$\\$COIBM](#)
- [\\$BLCKIVP](#)
- [\\$BLCKPLI](#)
- [\\$BLOCK](#)
- [\\$CMDPROC](#)
- [\\$ROUTIVP](#)
- [\\$VSAMIVP](#)
- [@MIBDYN](#)
- [@SYSBLG](#)
- [@SYSTEST](#)
- [AAQ57071](#)
- [ABRARC](#)
- [ABRINIT](#)
- [ABREMDL](#)
- [ABRREPT](#)
- [ABRREST](#)
- [ABRSTR](#)
- [ACCTLONG](#)
- [ACCTLON7](#)
- [ACCTLON8](#)
- [ACCTLON9](#)
- [ACFCERT2](#)
- [ACFTAP](#)

Accessing Mainframe Files from a Browser



The screenshot shows a Mozilla Firefox browser window displaying a mainframe job listing. The address bar shows the URL: `http://sysa.mib.com/mvsds/@SYSRJF.LIB.CNTL(ABRREST)`. The page content is a JCL job listing for job @SYSRJFA.

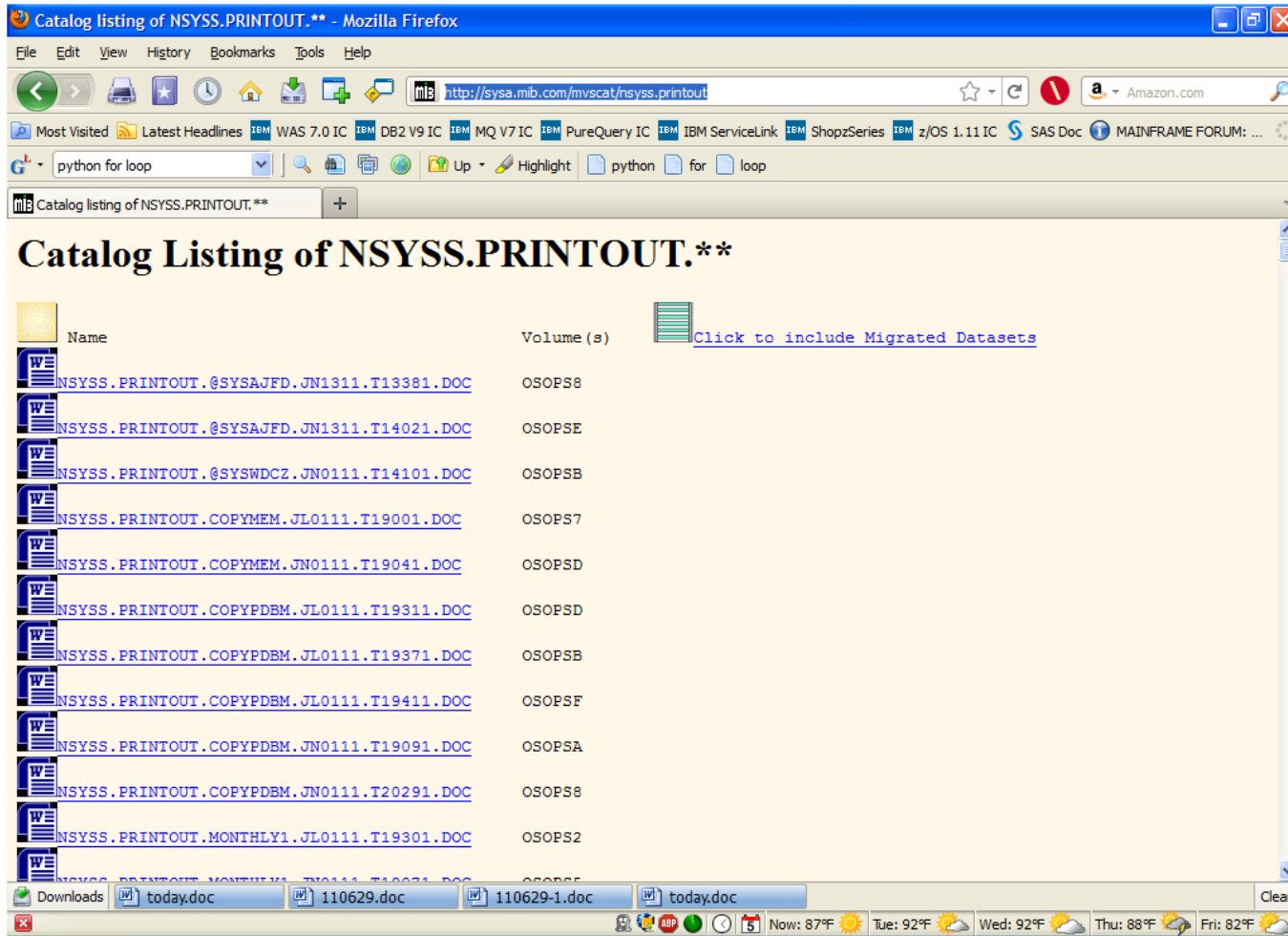
```
//@SYSRJFA JOB 'ROD FEAK',MSGLEVEL=(1,1),MSGCLASS=X,CLASS=A,
//          REGION=OM,NOTIFY=@SYSRJF
//REST EXEC PGM=FDRABR
//SYSPRINT DD SYSOUT=*
//* BKD(12)-2011.153 SFX-C1054606 FN-0001 VOLS-140481
//SYSUDUMP DD SYSOUT=*,HOLD=YES
//SYSPRIN# DD SYSOUT=*
//SYSPRIN1 DD SYSOUT=*
//TAPE1    DD DSN=FDRABR.VHFSA03.C1054606,DISP=OLD,UNIT=TAPE90,
//          VOL=SER=140481,LABEL=(1,SL)
//ABRWORK  DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSIN    DD *
RESTORE   TYPE=ABR
SELECT    DSN=OMVS.SYSA.U.CMA,GEN=546,CYCLE=6,
          VOL=HFSA03,NVOL=TMP093,NEWNAME=OMVS.SYSA.ROD.CMA
//
```

The Windows taskbar at the bottom shows the Downloads folder with files: today.doc, 110629.doc, 110629-1.doc, and today.doc. The system tray shows the date as Friday, August 12, 2011, and the time as 11:06 AM. The weather forecast for Orlando, FL, shows: Now: 87°F, Tue: 92°F, Wed: 92°F, Thu: 88°F, Fri: 82°F.

Accessing Mainframe Files from a Browser

- With a little REXX coding and the catalog lookup REXX IGGCSIRX supplied in SYS1.SAMPLIB:

Accessing Mainframe Files from a Browser

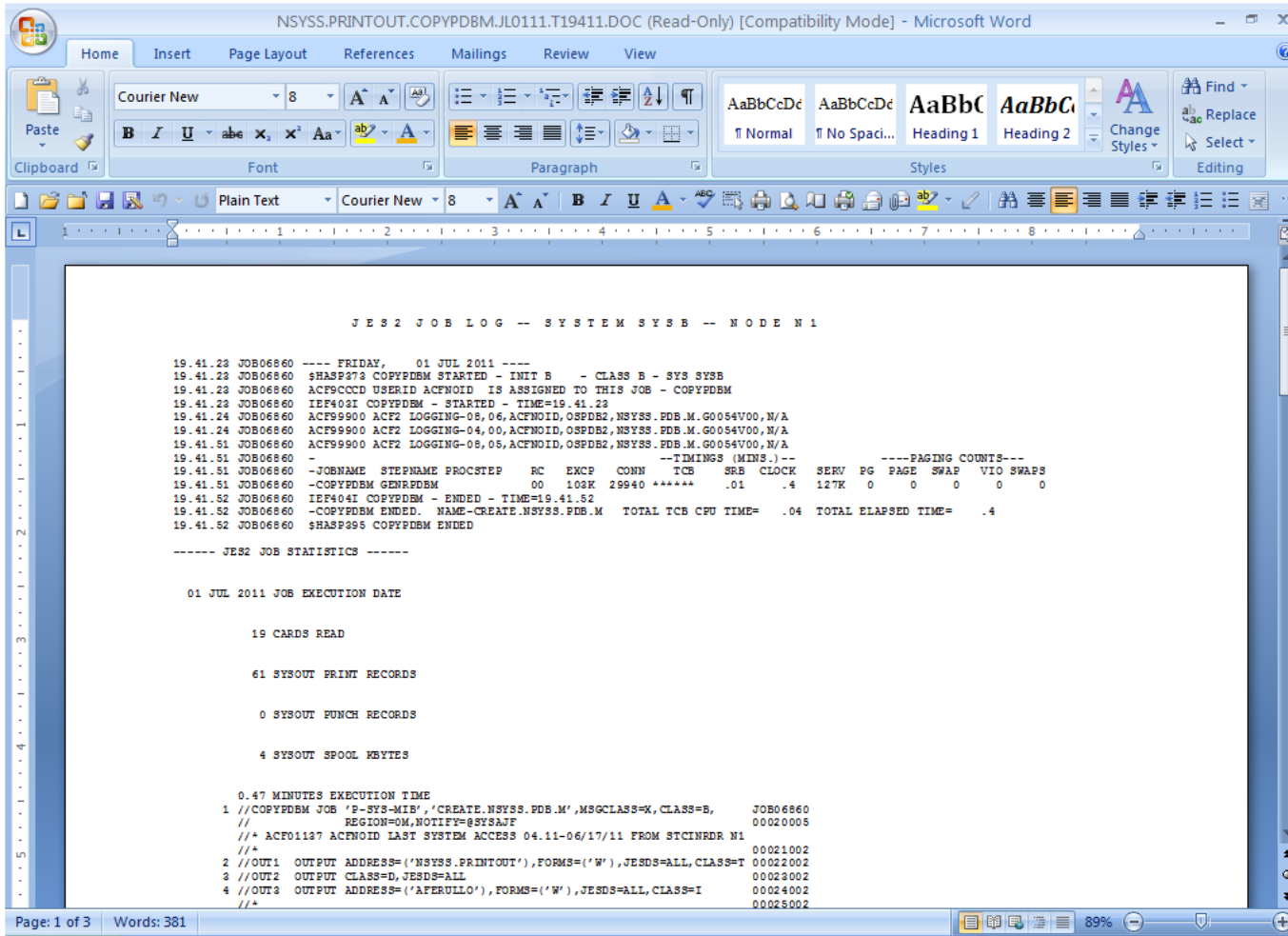


The screenshot shows a Mozilla Firefox browser window with the title "Catalog listing of NSYSS.PRINTOUT.**". The address bar contains the URL "http://sysa.mb.com/mvscat/nsyss.printout". The browser's search bar contains the text "python for loop". The main content area displays a table titled "Catalog Listing of NSYSS.PRINTOUT.**". The table has two columns: "Name" and "Volume (s)". A link "Click to include Migrated Datasets" is visible next to the "Volume (s)" header. The table lists several files, each with a document icon and a link to the file name. The files listed are:

Name	Volume (s)
NSYSS.PRINTOUT.@SYSAJFD.JN1311.T13381.DOC	OSOPSS
NSYSS.PRINTOUT.@SYSAJFD.JN1311.T14021.DOC	OSOPSE
NSYSS.PRINTOUT.@SYSWDCZ.JN0111.T14101.DOC	OSOPSB
NSYSS.PRINTOUT.COPYMEM.JL0111.T19001.DOC	OSOPS7
NSYSS.PRINTOUT.COPYMEM.JN0111.T19041.DOC	OSOPSD
NSYSS.PRINTOUT.COPYPDBM.JL0111.T19311.DOC	OSOPSD
NSYSS.PRINTOUT.COPYPDBM.JL0111.T19371.DOC	OSOPSB
NSYSS.PRINTOUT.COPYPDBM.JL0111.T19411.DOC	OSOPSF
NSYSS.PRINTOUT.COPYPDBM.JN0111.T19091.DOC	OSOPSA
NSYSS.PRINTOUT.COPYPDBM.JN0111.T20291.DOC	OSOPSS
NSYSS.PRINTOUT.MONTHLY1.JL0111.T19301.DOC	OSOPSS
NSYSS.PRINTOUT.MONTHLY1.JN0111.T19071.DOC	OSOPSS

The browser's taskbar at the bottom shows several open files: "today.doc", "110629.doc", and "110629-1.doc". The system tray on the right displays the current date and time, along with weather forecasts for the next five days: "Now: 87°F", "Tue: 92°F", "Wed: 92°F", "Thu: 88°F", and "Fri: 82°F".

Accessing Mainframe Files from a Browser



The screenshot shows a Microsoft Word window titled "NSYSS.PRINTOUT.COPYPDBM.JL0111.T19411.DOC (Read-Only) [Compatibility Mode] - Microsoft Word". The ribbon includes Home, Insert, Page Layout, References, Mailings, Review, and View. The ribbon tabs are Font, Paragraph, Styles, and Editing. The document content is a mainframe job log for JES2 JOB LOG -- SYSTEM SYSB -- NODE N1, dated 01 JUL 2011. The log includes job execution details, timing information, and statistics.

```
JES2 JOB LOG -- SYSTEM SYSB -- NODE N1

19.41.23 JOB06860 ---- FRIDAY, 01 JUL 2011 ----
19.41.23 JOB06860 $HASP273 COPYPDBM STARTED - INIT B - CLASS B - SYS SYSB
19.41.23 JOB06860 ACF9CCCD USERID ACFN0ID IS ASSIGNED TO THIS JOB - COPYPDBM
19.41.23 JOB06860 IEF403I COPYPDBM - STARTED - TIME=19.41.23
19.41.24 JOB06860 ACF99900 ACF2 LOGGING-08,06,ACFN0ID,OSPD22,NSYSS.FDB.M.G0054V00,M/A
19.41.24 JOB06860 ACF99900 ACF2 LOGGING-04,00,ACFN0ID,OSPD22,NSYSS.FDB.M.G0054V00,M/A
19.41.51 JOB06860 ACF99900 ACF2 LOGGING-08,05,ACFN0ID,OSPD22,NSYSS.FDB.M.G0054V00,M/A
19.41.51 JOB06860 -
19.41.51 JOB06860 -JOBNAME STEPNAME PROCSTEP RC EXCP CONN TCB SRS CLOCK SERV PG PAGE SWAP VIO SWAPS
19.41.51 JOB06860 -COPYPDBM GENRDEBM 00 102K 29940 ***** .01 .4 127K 0 0 0 0 0
19.41.52 JOB06860 IEF404I COPYPDBM - ENDED - TIME=19.41.52
19.41.52 JOB06860 -COPYPDBM ENDED. NAME=CREATE.NSYSS.FDB.M TOTAL TCB CPU TIME= .04 TOTAL ELAPSED TIME= .4
19.41.52 JOB06860 $HASP295 COPYPDBM ENDED

----- JES2 JOB STATISTICS -----

01 JUL 2011 JOB EXECUTION DATE

19 CARDS READ

61 SYSOUT PRINT RECORDS

0 SYSOUT PUNCH RECORDS

4 SYSOUT SPOOL KEYTES

0.47 MINUTES EXECUTION TIME
1 //COPYPDBM JOB 'P-SYS-MIS', 'CREATE.NSYSS.FDB.M',MSGCLASS=X,CLASS=B, JOB06860
// REGION=OM,NOTIFY=@SYS&JF 00020005
// * ACF01187 ACFN0ID LAST SYSTEM ACCESS 04.11-06/17/11 FROM STCINRDR N1
// * 00021002
2 //OUT1 OUTPUT ADDRESS=('NSYSS.PRINTOUT'),FORMS=('W'),JESDS=ALL,CLASS=T 00022002
3 //OUT2 OUTPUT CLASS=D,JESDS=ALL 00023002
4 //OUT3 OUTPUT ADDRESS=('AFERULLO'),FORMS=('W'),JESDS=ALL,CLASS=I 00024002
// * 00025002
```

Page: 1 of 3 Words: 381 89%

Copying Mainframe Files to a Windows Server

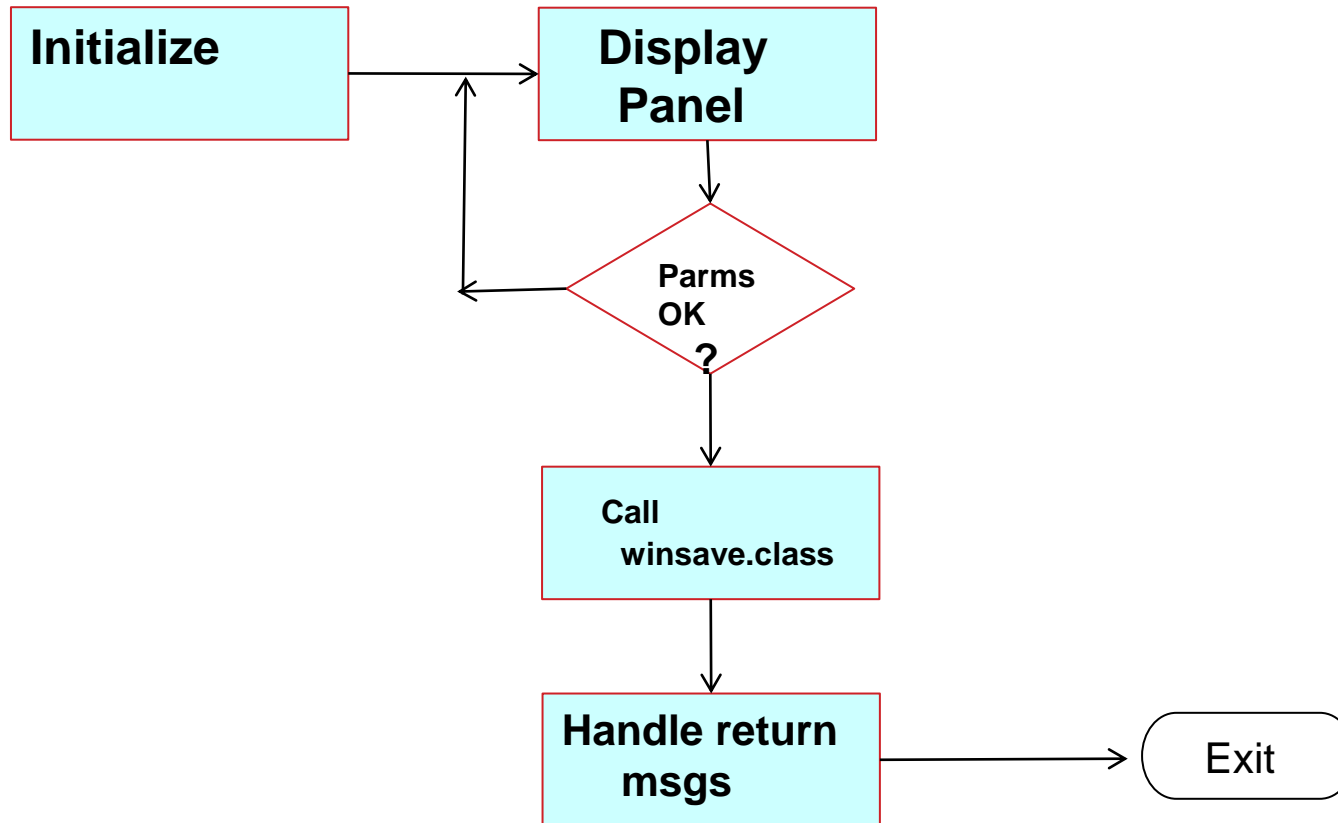
- Need a way to easily get mainframe files to a Windows server.
- FTP Server on Windows Server is a security issue.
- No easy way found on the Internet
- RYO
- Result: WINSAVE

WINSAVE

- Utilizes a Rexx ISPF edit macro that calls a Java program: Winsave
- Requires:
 - JCIFS java classes, open source which can be downloaded from jcfis.samba.org
 - JZOS java classes which come with IBM Java 1.6

JCIFS

WINSAVE (Cont.)



WINSAVE Rexx Code

```
/* REXX */
/* Initialization for this environment */
/* Local Variables */
Domain      = "MIBNET1"    /* Windows Domain name */
TempUnit    = "SYSDA"     /* DASD Pool Esoteric for Temp
                          Datasets */
AllocUnits  = "CYLINDER"  /* Space Units for allocation */
Primary     = "100"       /* Primary Space allocation */
Secondary   = "100"       /* Secondary Space allocation */
JavaCmd     = "/MIB/links/java/home/bin/java" /* location of
                                              java */
pgm         = "winsave"   /* name of java program */
cp1         = "/MIB/lib/jcifs-1.3.14.jar:/MIB/lib/"
            /* location of Program and utility jars */
```

WINSAVE Rexx Code

```
/* Environment Checks */
```

Code not shown

```
x = syscalls("ON")  
if x > 3 then  
    do  
        say "Cannot Establish a Unix Environment RC=" x  
        exit X  
    end
```

WINSAVE Rexx Code

```
address ISREDIT
"MACRO (PARMS) NOPROCESS"
if rc <> 0 then
  do
    say "The WINSAVE command is only to be used as an Edit
Macro," ,
      "terminating..."
    exit 12
  end
```

WINSAVE Rexx Code

```
/* Gather Variables */
```

```
"(OVDSN) = DATASET"
```

```
"(MEMBER) = MEMBER"
```

```
ADDRESS ISPEXEC "VGET (ISFHEAD) SHARED"
```

```
ADDRESS ISPEXEC "VGET (WLGSERVER) PROFILE"
```

```
ADDRESS ISPEXEC "VGET (WLGWFOLD) PROFILE"
```

```
ADDRESS ISPEXEC "VGET (WINFFILE) PROFILE"
```

```
ADDRESS ISPEXEC "VGET (WINUSER) PROFILE"
```

```
ADDRESS ISPEXEC "VGET (WINOVER) PROFILE"
```

WINSAVE Rexx Code (cont.)

```
select
when ovdsn <> '' then
  do
    if POS('/',ovdsn) <> 0 then
      member = ''
    end
  when isfhead <> '' then
    do
      parse var isfhead jobname jobnum
      ovdsn = jobname
      member = ''
    end
  otherwise
    nop
end
```


WINSAVE Rexx Code (cont.)

```
/* Process Range of Lines or Whole Dataset */
```

```
Code not shown
```

```
/*Build Panel*/
```

```
ZSRVER = WLGSERVER
```

```
ZWINFOLD = WLGWFOLD
```

```
ZWINFILE = WINFFILE
```

```
ZWUSR = WINUSER
```

```
ZOVER = WINOVER
```

```
ZWPASS = ""
```

```
ZWPAS2 = ""
```

```
if MEMBER <> ' ' then
```

```
    ZDSN = OVDSN || '(' || MEMBER || ') '
```

```
else
```

```
    ZDSN = OVDSN
```

WINSAVE Rexx Code (cont.)

```
/*Display Panel*/  
bExit      = 0  
bGoodtoGo = 0  
do while \bExit  
    zcmd = ''  
    ADDRESS ISPEXEC "DISPLAY PANEL(WINSAVEP) "  
    ZEDSMSG = ""  
    strCmd = translate(zcmd)
```

WINSAVE Rexx Code (cont.)

```

SYSC.WS - [32 x 80]
File Edit View Communication Actions Window Help
EDIT          SYS1.SYSTEMS.CLIST(WINSAVE) - 01.04          Columns 00001 00072
Command ==> winsave_                                     Scroll ==> HALF
***** Top of Data *****
000001 /* REXX */
000002 /* ===== */
000003 | WINSAVE - copy file to a Windows Server Folder
000004 |
000005 |      M o d i f i c a t i o n   H i s t o r y
000006 |
000007 |      Person      Date      Ver Description
000008 |      RJF         08/23/2010   New
000009 | * ===== */
000010 |
000011 /*-----*/
000012 | Initialization for this environment
000013 |-----*/
000014 |
000015 /*-----*/
000016 | Local Variables
000017 |-----*/
000018 |
000019 Domain      = "MIBNET1"      /* Windows Domain name */
000020 TempUnit     = "SYSDA"       /* DASD Pool Esoteric for Temp Datasets */
000021 AllocUnits   = "CYLINDER"    /* Space Units for allocation */
000022 Primary      = "100"        /* Primary Space allocation */
000023 Secondary    = "100"        /* Secondary Space allocation */
000024 JavaCmd      = "/MIB/links/java/home/bin/java" /* location of java */
000025 pgm          = "winsave"     /* name of java program */
000026 cp1          = "/MIB/lib/jcifs-1.3.14.jar:/MIB/lib/"
000027              /* location of Program and utility jars */
000028 /*-----*/
000029 | End Local Variables

```

Mâ a ↑ 02/022

Connected to remote server/host SYSC.MIB.COM using lu/pool TCP00027 and port 23

WINSAVE Rexx Code (cont.)

```
SYSC.WS - [32 x 80]
File Edit View Communication Actions Window Help
WINSAVE - Copy to a Windows File
OPTION ==> _____
-----
Dataset: SYS1.SYSTEMS.CLIST(WINSAVE)
Windows Server Share:..... //Dr1/admin
                               Ex. //server/share
Output Windows Folder Name: Share_test
Output Windows Filename:... $close .txt
Windows Userid:..... rfeak
Password:..... Password is
Re-Enter:..... case sensitive.
Overwrite existing File:... N (Y or N)
(You must have the proper authority on the Server to save files and create
directories)
Enter = Continue PF3 = Cancel
-----
Mâ a 14/031
Connected to remote server/host SYSC.MIB.COM using lu/pool TCP00027 and port 23
```

WINSAVE Rexx Code (cont.)

```
if word(zcmd,1) = 'can' | word(zcmd,1) = 'CAN' | rc = 8
  then
    do
      ZEDSMSG = "WINSAVE Cancelled."
      ZEDLMSG = "WINSAVE Processing
Cancelled."
      ADDRESS ISPEXEC "SETMSG MSG(ISRZ001)"
      /* msg - with alarm */
      bExit = 1
      iterate
    end
  Call Panel_Process
```

WINSAVE Rexx Code (cont.)

```
if bGoodtoGo then
    do
        Call Call_Java
        bGoodtoGo = 0
    end
end
```

/* SAVE variables */

Code not shown

`Exit`

/* Process Panel*/

Code not shown

WINSAVE Rexx Code (cont.)

Call_Java:

```
/* Allocate a Work File and write all lines to it*/  
Code not shown  
/* Setup and call the JCIFS java */  
r1  = '''||ZSRVER||"/'  
r2  = '''||ZWINFOLD||''''  
r3  = ZWUSR  
r4  = ZWPASS  
r5  = lpfwrkf_dsn  
r6  = '''||ZWINFILE||''''  
r7  = ZOVER  
r8  = Domain  
in.0 = 0  
env.0 = 1  
env.1 = './etc/profile'  
cmd = JavaCmd "-cp" cp1 pgm r1 r2 r3 r4 r5 r6 r7 r8
```

WINSAVE Rexx Code (cont.)

```
/*Call Java code to copy to windows */  
address ISPEXEC "CONTROL DISPLAY LOCK"  
address ISPEXEC "ADDPOP ROW(15) COLUMN(15) "  
address ISPEXEC "DISPLAY PANEL(WINSAVEQ) "
```

```
call bpxwunix cmd,in.,out.,err.,env.
```

```
address ISPEXEC "REMPPOP"
```

```
/*Clean up and provide message(s) to user */
```

Code not Shown

WINSAVE Java Code

```
// Source File Name:    winsave.java
import com.ibm.jzos.ZFile;
import com.ibm.jzos.ZUtil;
import java.io.BufferedReader;
import java.io.File;
import java.io.FileInputStream;
import java.io.InputStream;
import java.io.InputStreamReader;
import java.io.PrintStream;
import java.io.Reader;
import jcifs.smb.NtlmPasswordAuthentication;
import jcifs.smb.SmbFile;
import jcifs.smb.SmbFileOutputStream;
```

WINSAVE Java Code (cont.)

```
public class winsave {  
    public static void main(String[] args) {  
        try{  
// Parse parameters  
            String Server      = args[0];  
            String url          = "smb:" + Server;  
            String DirName     = args[1];  
            String UserId      = args[2];  
            String Password    = args[3];  
            String zosds       = args[4];  
            String FileName    = args[5];  
            String OverWrite   = args[6];  
            String Domain      = args[7];
```

WINSAVE Java Code (cont.)

```
// Get Authorization
    NtlmPasswordAuthentication auth = new
        NtlmPasswordAuthentication(Domain, UserId, Password);
// Connect to Share
    SmbFile Share = new SmbFile(url, auth);
// Get list of Folders and Files
    SmbFile[] dirlist = Share.listFiles();
// Locate Folder if it exists
    int iflag = 0;
    for (int i=0; i<dirlist.length; i++) {
        String FolderName = dirlist[i].getName();
        if (FolderName.equals(DirName+"/"))
            {
                iflag = 1;
            }
    }
```

WINSAVE Java Code (cont.)

```
// Create new Folder if required
String WorkDir = url + DirName + "/";
if (iflag == 0) {
    SmbFile newDir = new SmbFile(WorkDir, auth);
    newDir.mkdir();
}

// Set Up Output File
FileName = FileName + ".txt";
String WorkFile = WorkDir + FileName;
SmbFile newFile = new SmbFile(WorkFile, auth);
```

WINSAVE Java Code (cont.)

```
if (newFile.exists() && OverWrite.equals("N")) {
    System.out.println("WFRC=4");
}
else {
    int OwriteFlag = 0;
    if (newFile.exists()) {
        newFile.delete();
        OwriteFlag = 1;
    }
    newFile.createNewFile();
    SmbFileOutputStream out = new SmbFileOutputStream(newFile);
```

WINSAVE Java Code (cont.)

```
// Set Up Input File
    ZFile zFile = new ZFile("//'" + zosds + "'",
    "rb,type=record,noseek");
// Copy Input to Output
    byte[] recBuf = new byte[zFile.getLrecl()];
    String enc = ZUtil.getDefaultPlatformEncoding();
    int nRead;
    while((nRead = zFile.read(recBuf)) > 0) {
        String line = new String(recBuf, 0, nRead, enc);
        line = line + "\r\n";
        out.write(line.getBytes("ASCII"));
    } ;
} ;
```

WINSAVE Java Code (cont.)

```
// Close Input and Output
    zFile.close();
    out.close();
    if (OwriteFlag == 0) {
        System.out.println("WFRC=0");
    }
    else {
        System.out.println("WFRC=1");
    }
}

// Catch Exceptions
    }catch(Exception e){
System.out.println(e);
}    }
```

Questions

