MFNET UTILS

Purpose of this document

This document is meant to be a reference guide for zOS practicioners. Oriented mostly to Communications Server configuration, troubleshooting and related applications.

INDEX

Communication Server Commands

ESF Printers

NPF Printers

JES Printers

VPS

SMF

Useful Commands (NOT Communications Server)

Useful

File Transfer

XMIT

Connect Direct

WinSCP

FTP

SSH Suite

RACF

Common

Certificates

ACF2

Common

Certificates

JCL

REUSABLE JCL

Parameters

FileAid

SDSF

BPXBATCH

REXX

VSAM

SMPE

EXAMPLES

Communication Server Commands

INDEX

VTAM

```
S NET,,,(LIST=&VTAMSYMB)
START-- --procname--,--,--,--(--| Options |--)-------------><
```

https://www.ibm.com/docs/en/zos/2.2.0?topic=commands-start-command

https://www.ibm.com/docs/en/zos/2.1.0?topic=profile-conntype-statement

-CONNTYPE--+-SECURE-----+-'
+-NEGTSECURE-+
+-BASIC------+
+-ANY--------+
'-NONE-------'

ATCSTR Options:

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-start-options

INDEX

Display

```
D NET,STATIONS
D NET,SESSIONS,SCOPE=ALL,LIST=ALL
D NET,MAJNODES
D NET,VTAMOPTS
D NET,BFRUSE,BUFFER=SHORT
D NET,CSM,OWNERID=ALL
D NET,EE,LIST=DETAIL
D NET,TGPS
D NET,TRL
```

```
D NET,TABLE,ID=TABLE,E
```

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-table-command

RTP Connection

https://www.ibm.com/docs/en/zos/2.1.0?topic=determination-display-id-rtp-connection

Sessions

https://www.ibm.com/docs/en/zos/2.4.0?topic=commands-display-sessions-command

```
D NET,SESSION,SID=
D NET,E,ID=RTPSESS
```

```
D NET,APPLS,SCOPE=ACTSESS
```

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-appls-command

D NET:

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-id-command

```
D NET,ID=xxx,SCOPE=CONCT
```

APING

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-aping-command

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-apingdtp-command

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-apingtp-command

APPLS

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-appls-command

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-appntosa-command

AUTOLOG

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-autolog-command

BFRUSE

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-bfruse-command

BNCOSMAP

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-bncosmap-command

ADJCLUST

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-adjclust-command

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-adjcp-command

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-adjsscps-command

VTAM Problem Determination Tools

https://www.ibm.com/docs/en/zos/2.1.0?topic=commands-using-vtam-display-problem-determination

https://www.ibm.com/docs/en/zos/2.4.0?topic=commands-display-aping-command

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-id-command

https://www.ibm.com/docs/en/zos/2.4.0?topic=commands-display-vtamopts-command

https://www.ibm.com/docs/en/zos/2.4.0?topic=commands-display-tgps-command

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-appls-command

https://www.ibm.com/docs/en/zos/2.1.0?topic=commands-display-terms-command

https://www.ibm.com/docs/en/zos/2.2.0?topic=commands-display-table-command

https://www.ibm.com/docs/en/zos/2.4.0?topic=commands-display-majnodes-command

https://www.ibm.com/docs/en/zos/2.1.0?topic=section-d-network-display-network-activity

https://www.ibm.com/docs/en/zos/2.1.0?topic=commands-display-eediag-command

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-directry-command

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-adjclust-command

https://www.ibm.com/docs/en/zos/2.1.0?topic=commands-display-topo-command

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-csm-command

https://www.ibm.com/docs/en/zos/2.2.0?topic=commands-display-trl-command

https://www.ibm.com/docs/en/zos/2.4.0?topic=commands-d-stations-command

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-netsrvr-command

https://www.ibm.com/docs/en/zos/2.4.0?topic=commands-display-bfruse-command

https://www.ibm.com/docs/en/zos/2.4.0?topic=commands-display-cpcp-command

https://www.ibm.com/docs/en/zos/2.4.0?topic=commands-display-csdump-command

https://www.ibm.com/docs/en/zos/2.4.0?topic=commands-display-sessions-command

INDEX

Vary

Kill SNA SESSION

https://www.ibm.com/docs/en/zos/2.1.0?topic=commands-vary-term-command

```
V NET,TERM,SID=,TYPE=FORCE
```

Update same table

```
F NET,TABLE,TYPE=MODETAB,OPTION=LOAD,NEWTAB=IDB2TBL
```

Update with new table

```
F NET,TABLE,TYPE=MODETAB,OPTION=LOAD,NEWTAB=new,OLDTAB=old
```

https://www.ibm.com/docs/en/zos/2.2.0?topic=commands-modify-table-command

https://docs.bmc.com/docs/mcdv630/defining-a-default-vtam-mode-table-entry-856647506.html

https://www.ibm.com/docs/en/zos/2.2.0?topic=commands-modify-table-command

MODETAB

https://www.ibm.com/docs/en/zos/2.1.0?topic=interface-logon-mode-table

https://www.ibm.com/docs/en/zos/2.3.0?topic=udtdf-logon-mode-table

https://www.ibm.com/docs/en/zos/2.3.0?topic=table-logon-mode-full-syntax

https://www.ibm.com/docs/en/zos/2.1.0?topic=tasks-defining-appcmvs-logon-mode-entry-in-vtamlib

MODIFY Commands

https://www.ibm.com/docs/en/zos/2.2.0?topic=commands-modify-defaults-command#fde

https://www.ibm.com/docs/en/zos/2.4.0?topic=commands-modify-trace-command

https://www.ibm.com/docs/en/zos/2.4.0?topic=commands-modify-csdump-command

VARY Commands

https://www.ibm.com/docs/en/zos/2.4.0?topic=commands-vary-inact-command

https://www.ibm.com/docs/en/zos/2.4.0?topic=commands-vary-act-command

INDEX

TRACE

Start VTAM internal trace on both sides:

```
F NET,trace,type=vtam,size=200m,opt=(CIO,PIU,CIA,MSG,PSS)
```

Start GTF CCW trace with options:

```
S GTF,,,(MODE=EXT)
```

*6913 AHL125A RESPECIFY TRACE OPTIONS OR REPLY U

```
TRACE=IOP,SSCHP,CCWP
```

*6915 AHL101A SPECIFY TRACE EVENT KEYWORDS --IO=,SSCH=,CCW=,IO=SSCH=

```
R 6915,IO=SSCH=4112
```

*6932 AHL102A CONTINUE TRACE DEFINITION OR REPLY END

```
R 6932,CCW=(SI,CCWN=50,DATA=2048,IOSB)
R 6933,END
```

IEE600I REPLY TO 6933 IS;END
END

AHL103I TRACE OPTIONS SELECTED --,IO=SSCH=(4112) AHL103I CCW=(SI,IOSB,CCWN=50,DATA=2048)
*6934 AHL125A RESPECIFY TRACE OPTIONS OR REPLY U

AHL031I GTF INITIALIZATION COMPLETE IO=SSCH=4112
CCW=(SI,CCWN=50,DATA=2048,IOSB)

Recreate the problem. When the problem state occurs, dump both VTAMs using

```
F NET,CSDUMP
```

To stop GTF:

```
STOP GTF
```

To stop VIT:

```
F NET,NOTRACE,TYPE=VTAM,MODE=INT,OPTION=END
```

```
D IOS,MIH,DEV=4112
```

https://www.ibm.com/docs/en/zos/2.3.0?topic=gtf-starting-trace-vtam-remote-network-activity

https://www.ibm.com/docs/en/zos/2.2.0?topic=communication-specifying-gtf-trace-options

https://www.ibm.com/docs/en/zos/2.2.0?topic=sg-specifying-changing-gtf-trace-options-through-system-prompting

https://www.ibm.com/docs/en/zos/2.4.0?topic=gtf-stopping

https://www.ibm.com/docs/en/zos/2.4.0?topic=command-displaying-mih-io-timing-limits-iosmih

https://www.ibm.com/docs/en/ts7700-virtual-tape/4.2?topic=STFS69_4.2.0/ts7700_setting_mih.htm

INDEX

EE

XCF and EE

https://www.ibm.com/docs/en/zos/2.4.0?topic=distributor-route-selection-distributing-packets

https://www.ibm.com/docs/en/zos/2.4.0?topic=ecaxmn-external-communication-adapter-xca-major-node-operand-descriptions

https://www.ibm.com/docs/en/zos-basic-skills?topic=examples-enterprise-extender-configuration

https://www.ibm.com/docs/en/zos-basic-skills?topic=examples-extended-border-node-configuration

https://www.ibm.com/docs/en/zos-basic-skills?topic=examples-cisco-snasw-definitions

https://www.ibm.com/docs/en/zos-basic-skills?topic=si-enterprise-extender-implementation

https://www.ibm.com/docs/en/zos-basic-skills?topic=implementation-enterprise-extender

INDEX

OMVS

```
D OMVS,O
D OMVS,P
D OMVS,L
```

STOP OMVS processes from JES2:

```
D OMVS,A=ALL
```

https://www.ibm.com/docs/en/zos/2.4.0?topic=psufo-steps-shutting-down-zos-unix-using-f-omvsshutdown

```
F OMVS,STOPPFS=NFS - HFS or ZFS
```

https://www.ibm.com/docs/en/zos/2.4.0?topic=psufo-steps-shutting-down-zos-unix-using-f-omvsshutdown

```
F BPXOINIT,SHUTDOWN=FORKINIT - stops OMVS stuff like BPXAS
```

```
F OMVS,RESTART
```

```
F OMVS,SHUTDOWN
```

INDEX

JES

```
$djes2 - displays anything running on JES2
```

JES NODE - NJE

```
$D NODE
$D LINE
$SN,N=nodename
$S N,LINEx,SOCKET=nodename
```

```
$pjes2 - stops JES2
```

INDEX

TPX

https://techdocs.broadcom.com/us/en/ca-mainframe-software/traditional-management/ca-tpx-session-management/5-4/programming/tpx-programming/tpx-special-features-and-customization-tasks/customize-the-aptpx-member.html

Description of Statements

The following list explains the types of statements that are shown in the previous example.

```
    *TPX,PRINT=
```

```
Tells the software whether to list the APTPX member in printouts of your log. Any
log you send to
Broadcom
 for diagnostic purposes should include a copy of this member. The default value
is TPX,PRINT=ON. If you specify PRINT=OFF, you will not get a copy of this member
in your log.
```

```
    *TPX,PRIMARY
```

```
Defines the network name of your system and identifies this system as a PLU that
all physical terminals communicate with. The name that initially appears in column
one of this statement is TPX. You use this name when you specify your LOGON APPLID
commands in VTAM. For example, if the name you specify here is TPX, you would
issue LOGON APPLID(TPX).
```

```
    *TPX,SHARE
```

```
Identifies a virtual terminal that is used with applications that allow users to
share a single virtual terminal. You can define only one shared virtual terminal.
```

```
    *TPX,GROUP
```

```
Identifies virtual terminals that can be used with applications that allow a group
of users to share a virtual terminal, providing each user is accessing a different
application through the virtual terminal.
```

```
    *TPX,UNIQUE
```

```
Identifies virtual terminals that can be used with applications that require each
user to have a separate virtual terminal.
```

```
    *TPX,APPLPPS
```

```
Identifies virtual printers used for Application Passthrough Printer Support. For
more information about Application Passthrough Printer Support, see the
Administrating section.
```

```
    *TPX,USERPPS
```

```
Identifies virtual printers that are used for User Passthrough Printer Support.
For more information about User Passthrough Printer Support, see the
Administrating section.
```

https://techdocs.broadcom.com/us/en/ca-mainframe-software/traditional-management/ca-tpx-session-management/5-4/programming/tpx-programming/tpx-special-features-and-customization-tasks/customize-the-aptpx-member.html

TPX Command Summary:

```
      /sessid                     - Switch/activate named session
      /A <ALL>                    - Activate implied or all sessions
      /B                          - Access the TPX Mailbox system
      /D sessid                   - Delete dynamically added session
      /E CMD=/CHR=/etc            - Temporary change to user profile
      /F                          - Return to LOGO
      /G <all>                    - Activate sessions without ACL
      /H                          - Help
      /I <all>                    - Inactivate implied or all sessions
      /J                          - Jump to next active session
      /K                          - Logoff from TPX
      /L                          - Lock terminal
      /N sessid                   - Start session in PASS mode
      /P sessid dest cls          - Capture session's screen image
      /Q sessid dest              - Send screen from sessid to userid
```

```
       /R                          - Reshow the last screen
       /S sessid aclpgm            - Start an ACL prgm for sessid
       /V sessid                   - Interrupt an ACL prgm for sessid
       /W                          - Display TPX selection menu
```

TPX Activate Session:

https://techdocs.broadcom.com/us/en/ca-mainframe-software/traditional-management/ca-tpx-session-management/5-4/administrating/general-administration/specifying-application-characteristics/add-or-modify-application-characteristics.html

TPXOPER

```
ACT applid
```

Virtual Terminal:

https://knowledge.broadcom.com/external/article/51044/tpxoper-display-for-dynamically-added-vt.html

https://knowledge.broadcom.com/external/article/19727/in-output-of-tpxoper-d-t-why-does-a-real.html

https://techdocs.broadcom.com/us/en/ca-mainframe-software/traditional-management/ca-tpx-session-management/5-4/operating/operator-commands/activate-command.html

https://techdocs.broadcom.com/us/en/ca-mainframe-software/traditional-management/ca-tpx-session-management/5-4/operating/operator-commands/display-command-for-virtual-terminals.html

```
D VT,ALL
D VT,INACT
D VT,ACT
```

https://techdocs.broadcom.com/us/en/ca-mainframe-software/traditional-management/ca-tpx-session-management/5-4/operating/operator-commands/modify-command.html

```
MOD VT=x,AVAIL
MOD VT=x,UNAVAIL
```

RELOAD

https://techdocs.broadcom.com/us/en/ca-mainframe-software/traditional-management/ca-tpx-session-management/5-4/operating/operator-commands/reload-command.html

```
RELOAD PROF=
RELOAD TABLE=
RELOAD ACT=
```

```
RELOAD SMRT=smrtname
D U,SUMM
S TPX,SMRT=smrtname
```

INDEX

TCPIP

STOP TCPIP

```
/FORCE TCPIP,ARM
```

Displays

```
D TCPIP,,N,CONFIG
D TCPIP,,N,HOME
D TCPIP,,N,STATS
D TCPIP,,N,ROUTE,MAX=*
D TCPIP,,OMPROUTE,OSPF,LIST,ALL
D TCPIP,,OMPROUTE,RIP,LIST,ALL
```

TCPIP PROFILE CONFIG:

https://www.ibm.com/docs/en/zos/2.2.0?topic=statements-tcpconfig-statement

SACONFIG ENABLED COMMUNITY public AGENT 161

TCPIP PROFILE DELETE:

https://www.ibm.com/docs/en/zos/2.1.0?topic=statements-delete-statement

https://www.ibm.com/docs/en/zos/2.1.0?topic=messages-ezz0395i

```
D TCPIP,,N,CONN,CONNT=TTLSP
D TCPIP,,N,CONN,SERVER -- ONLY LISTEN STATUS
```

https://www.ibm.com/docs/en/zos/2.2.0?topic=commands-display-topo-command

DEBUG

https://www.ibm.com/docs/en/zos/2.1.0?topic=messages-ezz6035i

Interfaces

https://www.ibm.com/docs/en/zos/2.2.0?topic=statements-interface-ipaqenet-osa-express-qdio-interfaces-statement

https://www.ibm.com/docs/en/zos/2.3.0?topic=statements-summary-interface#interf

https://www.ibm.com/docs/en/zos/2.3.0?topic=statements-summary-device-link

https://www.ibm.com/docs/en/zos/2.2.0?topic=statements-monitoring-network-interfaces-interface

https://www.ibm.com/docs/en/zos/2.3.0?topic=vlan-configuration-recommendations

https://www.ibm.com/docs/en/zos/2.4.0?topic=cnha-steps-converting-from-ipv4-ipaqenet-device-link-home-definitions-ipv4-ipaqenet-interface-statement

DEVICE and LINK:

https://www.ibm.com/docs/en/zos/2.2.0?topic=tppcs-device-link-mpcipa-osa-express-qdio-devices-statement

https://www.ibm.com/docs/en/zos/2.2.0?topic=statements-steps-modifying-device-link

DROP

https://www.ibm.com/docs/en/zos/2.4.0?topic=space-vary-tcpipdrop

```
Vary
TCPIP
,
procname
,
DRop,
CMD=DRop,
connid
CONNection=
connid
```

INDEX

TN3270

TN3270

https://www.ibm.com/docs/en/zos/2.4.0?topic=telnet-commands

https://www.ibm.com/docs/en/zos/2.4.0?topic=space-vary-tcpiptnproctelnet

https://www.ibm.com/docs/en/zos/2.4.0?topic=SSLTBW_2.4.0/com.ibm.zos.v2r4.halu101/varystopcmd.html

https://www.ibm.com/docs/en/zos/2.4.0?topic=server-managing-telnet

```
V TCPIP,TN3270,O,DSN=XXX
V TCPIP,TN3270,STOP,PORT=23
D TCPIP,TN3270,PROFILE
```

TN3270

https://www.ibm.com/docs/en/zos/2.3.0?topic=command-display-tn3270e-telnet-server-address-space

https://www.ibm.com/docs/en/zos/2.3.0?topic=space-display-telnet-connection-command#dtel

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-tcpip-telnet

https://www.ibm.com/docs/en/zos/2.4.0?topic=space-display-telnet-profile-command

https://www.ibm.com/docs/en/zos/2.1.0?topic=files-tn3270e-telnet-server-profile-configuration-file

https://www.ibm.com/docs/en/zos/2.1.0?topic=server-telnet-profile-statements-overview

https://www.ibm.com/docs/en/zos/2.1.0?topic=server-telnet-parameter-statements-in-telnet-profile

```
Display TCPIP
,tnproc
,Telnet
,CLientID
,OBJect
,PROFile
,CONNection
,INACTLUS
```

PORT and PARM Definitions

https://www.ibm.com/docs/en/zos/2.1.0?topic=security-transport-layer

LU NAMES

https://www.ibm.com/docs/en/zos/2.1.0?topic=profile-rules-lu-name-specification

https://www.ibm.com/docs/en/zos/2.1.0?topic=server-telnet-parameter-statements-in-telnet-profile

https://www.ibm.com/docs/en/zos/2.1.0?topic=profile-rules-telnet-parameter-statements-security-parameters#vtamrul

https://www.ibm.com/docs/en/zos/2.4.0?topic=ttss-secure-non-secure-connections-using-single-telnet-port

https://www.ibm.com/docs/en/zos/2.4.0?topic=ssl-tn3270e-telnet-server-security

https://www.ibm.com/docs/en/zos/2.2.0?topic=profile-keyring-statement

https://www.ibm.com/docs/en/zos/2.4.0?topic=ttss-secure-non-secure-connections-using-single-telnet-port#security_tn3270e_mixed_traffic__secsing

SMF Records

https://www.ibm.com/docs/en/zos/2.1.0?topic=profile-smfinit-smfterm-statements

INDEX

Troubleshoot

https://www.ibm.com/docs/en/zos/2.4.0?topic=server-zos-communications-ip-diagnosis-guide

https://www.ibm.com/docs/en/zos/2.3.0?topic=space-display-telnet-connection-command#dtel

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-tcpip-telnet

---

NETSTAT

NETSTAT

https://www.ibm.com/docs/en/zos/2.3.0?topic=commands-display-tcpip-netstat

DISPLAY TCPIP NETSTAT

```
D TCPIP,,N,CONN,
                CLIENT=
                PORT=
                SERVER
                MAX=*
                CONNT=TTLSP
```

TRACERTE

https://www.ibm.com/docs/en/zos/2.4.0?topic=traceroute-tso-tracerte-command-debug-network-problems

---

NSLOOKUP UNIX

https://www.ibm.com/docs/en/zos/2.3.0?topic=command-nslookup-examples

https://www.ibm.com/docs/en/zos/2.3.0?topic=command-nslookup-query-name-server-in-mode

https://www.ibm.com/docs/en/zos/2.3.0?topic=command-nslookup-options#optdns

https://www.ibm.com/docs/en/zos/2.3.0?topic=utnc-nslookup-configuration

https://www.ibm.com/docs/en/zos/2.3.0?topic=utnc-nslookup-issue-queries-name-servers-in-interactive-mode

https://www.ibm.com/docs/en/zos/2.3.0?topic=command-nslookup-options

---

PING

https://www.ibm.com/docs/en/zos/2.1.0?topic=network-ping

https://www.ibm.com/docs/en/zos/2.4.0?topic=ping-tso-command-send-echo-request

```
ping 8.8.8.8 (intf intfname
```

PING UNIX

https://www.ibm.com/docs/en/zos/2.2.0?topic=ping-zos-unix-command-send-echo-request

https://www.ibm.com/docs/en/zos/2.2.0?topic=ping-tso-command-send-echo-request

Format Read syntax diagramSkip visual syntax diagram

```
>>-ping--+-+------------+-- host_name-+------------------------><
         | '-| Option |-'              |
         +- -h-----------------------+
         '- -?-----------------------'
```

Option

```
   .---------------------.
   V                     |
|----+-----------------+-+-------------------------------------|
     +- -A-+-ipv4-+----+
     |     '-ipv6-'    |
     |     .-1----.    |
     +- -c-+------+----+
     |     '-echo-'    |
     +- -i interface---+
     |     .-256---.   |
     +- -l-+-------+---+
     |     '-bytes-'   |
     +- -n-------------+
     +- -P-+-yes----+--+
     |     '-ignore-'  |
     +- -p tcpname-----+
     +- -s srcip-------+
     |     .-10------. |
     +- -t-+---------+-+
     |     '-seconds-' |
     '- -v-------------'
```

INDEX

RESOLVER

```
F RESOLVER,DISPLAY
F RESOLVER,REFRESH
F RESOLVER,FLUSH,ALL
```

https://www.ibm.com/docs/en/zos/2.4.0?topic=command-modify-resolver-address-space

https://www.ibm.com/docs/en/zos-basic-skills?topic=information-resolver-address-space

https://www.ibm.com/docs/en/zos-basic-skills?topic=information-type-application-mvs-zos-unix

https://www.ibm.com/docs/en/zos/2.2.0?topic=environment-base-resolver-configuration-files

GLOBALTCPIPDATA

This statement is used to identify a specific resolver configuration file that contains the resolver configuration statements (NAMESERVER, HOSTNAME, and so on) that are to be applied globally to all IP applications.

DEFAULTTCPIPDATA

This statement is used to define a default resolver configuration file that is used as a last resort.

https://www.ibm.com/docs/en/zos/2.3.0?topic=customization-configuring-profiletcpip

The search order used to access the base resolver configuration file is as follows:

GLOBALTCPIPDATA

If defined, the resolver GLOBALTCPIPDATA setup statement value is used. For a description of the GLOBALTCPIPDATA statement, see The resolver and the global TCPIP.DATA file.

The search continues for an additional configuration file. The search ends with the next file found.

The value of the environment variable RESOLVER_CONFIG

The value of the environment variable is used. This search will fail if the file does not exist or is allocated exclusively elsewhere.

/etc/resolv.conf //SYSTCPD DD card

The data set allocated to the ddname SYSTCPD is used. In the z/OS® UNIX environment, a child process does not have access to the SYSTCPD DD. This is because the SYSTCPD allocation is not inherited from the parent process over the fork() or exec function calls.

userid.TCPIP.DATA

userid is the user ID that is associated with the current security environment (address space or task/thread)

SYS1.TCPPARMS(TCPDATA)

DEFAULTTCPIPDATA

If defined, the resolver DEFAULTTCPIPDATA setup statement value is used. For a description of the DEFAULTTCPIPDATA statement, see The resolver and the global TCPIP.DATA file.

TCPIP.TCPIP.DATA

https://www.ibm.com/docs/en/aix/7.2?topic=resolution-name

https://www.ibm.com/docs/en/aix/7.2?topic=resolution-local-name-etchosts-tasks

https://www.ibm.com/docs/en/aix/7.2?topic=resolution-configuring-host-use-name-server

List All the Hosts smit lshostent Use the hostent command or view /etc/hosts Add a Host smit mkhostent Use the hostent command or edit /etc/hosts Change/Show Characteristics of a Host smit chhostent Use the hostent command or edit /etc/hosts Remove a Host smit rmhostent Use the hostent command or edit /etc/hosts

TCPIP.DATA:

https://www.ibm.com/docs/en/zos/2.2.0?topic=stack-tcpipdata-search-order

https://www.ibm.com/docs/en/zos/2.2.0?topic=files-search-orders-used-in-zos-unix-environment#unixso

RESOLVER SEARCH ORDER

https://www.ibm.com/docs/en/zos/2.2.0?topic=resolver-configuration-files#resconf__ftypet

RESOLVER SETUP FILE:

```
DEFAULTTCPIPDATA('HLQ.Q(MEMBER)')
GLOBALTCPIPDATA('HLQ.Q(MEMBER)')
NOCOMMONSEARCH
CACHE
NOCACHEREORDER
CACHESIZE(200M)
MAXTTL(2147483647)
MAXNEGTTL(2147483647)
UNRESPONSIVETHRESHOLD(25)
```

INDEX

MAKESITE

HOSTS FILE

MAKESITE

```
MAKESITE HLQ=TCPIP,VOLSER=volser,UNIT=SYSDA
```

https://www.ibm.com/docs/en/zos/2.1.0?topic=commands-makesite-command

Format

Read syntax diagramSkip visual syntax diagram

```
>>-MAKESITE--+-----------+--,---------------------------------->
             '-HLQ=--hlq-'
```

```
>--+----------------------------+--,-------------------------->
   '-MGMTclas=--management_class-'

>--+-----------------------+--,--+-------------------------+--->
   '-DATAclas=--data_class-'     '-STORclas=--storage_class-'

>--,--+-------------+--,--+-----------------------+-----------><
      '-Unit=--unit-'     '-VOLser=--volume_serial-'
```

https://www.ibm.com/docs/en/zos-basic-skills?topic=information-search-order-resolver-configuration

//SYSTCPD DD card.

The data set allocated to the DDname SYSTCPD is used. In the z/OS UNIX environment, a child process does not have access to the SYSTCPD DD. This is because the SYSTCPD allocation is not inherited from the parent process over the fork() or exec function calls. userid.TCPIP.DATA. "userid" is the user ID that is associated with the current security environment (address space or task/thread). An MVS environment application could theoretically run without an associated user ID. If so, the job name would be used for this data set instead.

SYS1.TCPPARMS(TCPDATA)

DEFAULTTCPIPDATA.

If defined, the resolver DEFAULTTCPIPDATA setup statement value is used.

TCPIP.TCPIP.DATA

As a batch job, you might use this JCL:

//MAKESITE JOB ,TIME=2,NOTIFY=USER7 //* //BATCH EXEC PGM=MAKESITE,REGION=8000K, // PARM='VOLSER=volser,UNIT=SYSDA,HLQ=TCPIP,' //* //STEPLIB DD DISP=SHR,DSN=TCPIP.SEZALOAD //SYSPRINT DD SYSOUT=*,DCB=(LRECL=132,RECFM=FBA,BLKSIZE=3960) //SYSABEND DD SYSOUT= //*

INDEX

OMPROUTE

OMPROUTE

https://www.ibm.com/docs/en/zos/2.4.0?topic=routing-steps-configuring-ospf-rip-ipv4-ipv6

https://manualzz.com/doc/28975554/z-os-omproute-hints-and-tips

https://www.ibm.com/docs/en/zos/2.3.0?topic=statements-ospf-configuration

https://www.ibm.com/docs/en/ssw_ibm_i_73/pdf/rzal6ospfpdf.pdf

https://www.ibm.com/docs/en/zvm/7.1?topic=ospf-default-route

```
D TCPIP,,OMPROUTE,OSPF,LIST,ALL
D TCPIP,,OMPROUTE,RIP,LIST,ALL
```

INDEX

SNMP

SNMP

```
snmp -c communityname walk system

Snmp -c comm -h host -a (use interfaces) -v (verbose) -d 4 (0-4 values)
```

Snmp command:

https://www.ibm.com/docs/en/zos/2.4.0?topic=snmp-zos-unix-command

https://www.ibm.com/docs/en/zos/2.2.0?topic=osnmpd-parameters

SACONFIG ENABLED COMMUNITY public AGENT 161

https://www.ibm.com/docs/en/zos/2.2.0?topic=statements-saconfig-statement

Configuration:

https://www.ibm.com/docs/en/zos/2.2.0?topic=osnmpd-parameters

https://www.ibm.com/docs/en/zos/2.2.0?topic=needs-community-based-security

https://www.ibm.com/docs/en/zos/2.2.0?topic=dssn-decide-your-security-needs-community-based-user-based

https://www.ibm.com/docs/en/zos/2.2.0?topic=information-creating-user-keys#pwtok1

https://www.ibm.com/docs/en/zos/2.2.0?topic=overview-snmp-agent

https://www.ibm.com/docs/en/zos/2.2.0?topic=file-steps-migrating-pwsrc-snmptrapdest-files

https://www.ibm.com/docs/en/zos/2.2.0?topic=agent-provide-tcpip-profile-statements

https://www.ibm.com/docs/en/zos/2.2.0?topic=information-pwsrc-example

https://www.ibm.com/docs/en/zos/2.2.0?topic=agent-sample-jcl-procedure-starting-osnmpd-from-mvs

https://www.ibm.com/docs/en/zos/2.2.0?topic=agent-starting-osnmpd-from-zos-unix

https://www.ibm.com/docs/en/zos/2.2.0?topic=subagents-connecting-agent-through-tcp

https://www.ibm.com/docs/en/zos/2.2.0?topic=agent-allowing-subagents-duplicate-identifiers-connect

https://www.ibm.com/docs/en/zos/2.2.0?topic=agent-provide-mib-object-configuration-information

https://www.ibm.com/docs/en/zos/2.2.0?topic=agent-common-inet-considerations

https://www.ibm.com/docs/en/zos/2.2.0?topic=agent-start-snmp

SACONFIG ENABLED COMMUNITY public AGENT 161

INDEX

ATTLS

ATTLS

pasearch Command

https://www.ibm.com/docs/en/zos/2.1.0?topic=information-zos-unix-pasearch-command-display-policies

Implement TLS 1.2 without ATTLS:

https://www.ibm.com/support/pages/zos-communications-server-tls-needed-implement-tls-v12

Guide:

https://www.ibm.com/docs/en/zos/2.2.0?topic=security-transport-layer

https://www.ibm.com/docs/en/rtw/9.0.1?topic=clip-setting-up-tls#ritzos_attls__attls5

Setting Up RACF Permits for Stack Access (EZZ4248E TCPIP waiting for PAGENT):

https://www.ibm.com/support/pages/during-tls-startup-message-ezz4248e-written-console-not-released

For Clients:

https://www.ibm.com/docs/en/zos/2.2.0?topic=tls-configuring-client-systems

For Servers:

https://www.ibm.com/docs/en/zos/2.2.0?topic=tls-configuring-server-system

For TN3270:

https://www.ibm.com/support/pages/system/files/inline-files/An_Introduction_to_AT-TLS_for_FTP_and_TN3270.pdf

PARAMETERS

https://www.ibm.com/docs/en/zos/2.4.0?topic=applications-tls-policy-statements#tlspol

TLS 1.3

https://www.ibm.com/docs/en/zos/2.4.0?topic=security-tls-support-tls-v13

https://www.ibm.com/docs/en/rtw/9.0.1?topic=clip-setting-up-tls#ritzos_attls__attls5

https://www.ibm.com/support/pages/system/files/inline-files/An_Introduction_to_AT-TLS_for_FTP_and_TN3270.pdf

https://www.ibm.com/support/pages/zos-communications-server-tls-needed-implement-tls-v12

https://www.ibm.com/docs/en/integration-bus/10.0?topic=tls-configuring-activating-policy-agent-pagent

https://www.ibm.com/docs/en/zos/2.4.0?topic=statements-ttlsenvironmentadvancedparms-statement

https://www.ibm.com/docs/en/zos/2.2.0?topic=security-transport-layer

https://www.ibm.com/docs/en/integration-bus/10.0?topic=tls-configuring-activating-policy-agent-pagent

https://www.ibm.com/docs/en/ibm-mq/9.1?topic=codes-transport-layer-security-tls-return-zos

https://www.ibm.com/docs/es/rtw/9.0.1?topic=clip-setting-up-tls

https://www.ibm.com/docs/en/zos/2.2.0?topic=statements-tcpconfig-statement

```
      | '-TIMEWAITInterval seconds-'                      |
      | .-NOTTLS-.                                        |
      '-+--------+---------------------------------------'
        '-TTLS---'
```

https://www.ibm.com/support/pages/how-can-we-determine-whether-tls-connection-mapped-tls-policy

https://www.ibm.com/support/pages/how-can-i-determine-whether-tlsv12-enabled-my-tls-connections

SSL Import

https://www.ibm.com/docs/en/zos/2.1.0?topic=menu-import-certificate

https://www.ibm.com/docs/en/zos/2.1.0?topic=menu-import-certificate-private-key

https://www.ibm.com/docs/en/zos/2.1.0?topic=03353xxx-0335301f

https://www.ibm.com/docs/en/zos/2.3.0?topic=sfrc-417

https://marc.info/?l=racf-l&m=151984184415528&w=2

https://techdocs.broadcom.com/us/en/ca-mainframe-software/security/ca-acf2-for-z-os/16-0/administrating/digital-certificate-support/process-digital-certificates-with-ca-acf2.html

https://www.ibm.com/docs/en/zos/2.1.0?topic=gime-importing-certificate-from-file-as-trusted-ca-certificate

https://www.ibm.com/docs/en/zos/2.4.0?topic=certificates-racdcert-add-add-certificate

SSL Troubleshoot

https://www.ibm.com/support/pages/ftp-fails-eza2897i-authentication-negotiation-failed-message

https://access.redhat.com/solutions/548573

https://www.ibm.com/support/pages/why-are-tls-connections-failing-ezd1286i-or-ezd1287i-return-code-428

https://www.ibm.com/docs/en/zos/2.1.0?topic=tls-return-codes

https://www.ibm.com/docs/en/zos/2.4.0?topic=services-zos-cryptographic-system-ssl-programming

https://www.ibm.com/docs/en/zos/2.4.0?topic=codes-ssl-function-return

EZD1281I indicates that the TCP connection with the specified connection ID (CONNID) matched the specified Application Transparent Transport Layer Security (AT-TLS) rule. This CONNID will be used in all future AT-TLS messages for this connection. rule is the name of the TTLSRule that mapped this connection. stat is the AT-TLS status for the connection.

The values for stat are:

Not Enabled if TTLSEnabled in the matching AT-TLS policy is set to OFF (AT-TLS security is active. Data might be encrypted, based on other policy statements.).

Enabled if TTLSEnabled in the matching AT-TLS policy is set to ON (AT-TLS security is not active. Data is sent in the clear.).

Appl Control if ApplicationControlled in the matching AT-TLS policy is set to ON (An application can control AT-TLS security. AT-TLS security is used only when requested by the application, using the SIOCTTLSCTL ioctl.).

```
D TCPIP,,N,CONN,CONNT,TTLSP
```

ADD TLS Troubleshoot

```
F PAGENT,REFRESH
```

LogLevel 511 TLSRFCLEVEL RFC4217

ATTLS TRACE 2

https://www.ibm.com/docs/en/zos/2.3.0?topic=statements-ttlsconfig-statement

https://www.ibm.com/docs/en/zos/2.5.0?topic=statements-ttlsrule-statement

TTLSConfig //'USER1.PAGENT.CONF(TTLS)'

TTLSConfig /u/user1/pagent.ttls

```
TTLSRule                          PROC
{
  LocalAddr                       ALL
  RemoteAddr                      ALL
  LocalPortRangeRef               portR7
  RemotePortRangeRef              portR2
  Direction                       Inbound
  Priority                        255
  TTLSGroupActionRef              gAct1
  TTLSEnvironmentActionRef        eAct7
  TTLSConnectionActionRef         cAct7
}
```

```
TTLSGroupAction                   gAct1
{
  TTLSEnabled                     On
  Trace                           2
}
TTLSEnvironmentAction             eAct7
{
  HandshakeRole                   Server
  Trace                           7
  TTLSKeyringParmsRef             keyR7
  TTLSEnvironmentAdvancedParmsRef eAdv1
}
TTLSEnvironmentAdvancedParms      eAdv1
{
TLSv1.1 On
TLSv1.2 On
ClientAuthType PassThru
}
TTLSConnectionAction              cAct7
{
  HandshakeRole                   Server
  TTLSCipherParmsRef              cipher4~Default_NISTCiphers_z196
  TTLSConnectionAdvancedParmsRef  cAdv7~PROC
  CtraceClearText                 Off
  Trace                           7
}
TTLSConnectionAdvancedParms       cAdv7~PROC
{
  SSLv3                           Off
  TLSv1                           Off
  TLSv1.1                         On
  ApplicationControlled           Off
  SecondaryMap                    Off
  TLSv1.2                         On
  CertificateLabel                PROC_CERT
}
TTLSKeyringParms                  keyR7
{
  Keyring                         PROC_RING
}
PortRange                         portR7
{
  Port                            2470-2471
}
TTLSCipherParms                   cipher5~Default_PROC
{
  V3CipherSuites TLS_DH_DSS_WITH_DES_CBC_SHA
  V3CipherSuites TLS_DH_RSA_WITH_DES_CBC_SHA
  V3CipherSuites TLS_NULL_WITH_NULL_NULL
  V3CipherSuites TLS_RSA_WITH_NULL_MD5
  V3CipherSuites TLS_RSA_WITH_NULL_SHA
  V3CipherSuites TLS_RSA_EXPORT_WITH_RC4_40_MD5
  V3CipherSuites TLS_RSA_EXPORT_WITH_RC2_CBC_40_MD5
  V3CipherSuites TLS_RSA_WITH_DES_CBC_SHA
```

```
    V3CipherSuites TLS_DHE_DSS_WITH_DES_CBC_SHA
    V3CipherSuites TLS_DHE_RSA_WITH_DES_CBC_SHA
    V3CipherSuites TLS_RSA_WITH_AES_256_CBC_SHA256
    V3CipherSuites TLS_RSA_WITH_AES_256_CBC_SHA
    V3CipherSuites TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA256
    V3CipherSuites TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256
    V3CipherSuites TLS_RSA_WITH_AES_128_CBC_SHA256
    V3CipherSuites TLS_ECDH_ECDSA_WITH_AES_128_CBC_SHA256
    V3CipherSuites TLS_ECDH_RSA_WITH_AES_128_CBC_SHA256
    V3CipherSuites TLS_DHE_RSA_WITH_AES_128_CBC_SHA256
    V3CipherSuites TLS_DHE_DSS_WITH_AES_128_CBC_SHA256
    V3CipherSuites TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA
    V3CipherSuites TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA
    V3CipherSuites TLS_RSA_WITH_AES_128_CBC_SHA
    V3CipherSuites TLS_ECDH_ECDSA_WITH_AES_128_CBC_SHA
    V3CipherSuites TLS_ECDH_RSA_WITH_AES_128_CBC_SHA
    V3CipherSuites TLS_DHE_RSA_WITH_AES_128_CBC_SHA
    V3CipherSuites TLS_DHE_DSS_WITH_AES_128_CBC_SHA
    V3CipherSuites TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
    V3CipherSuites TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
    V3CipherSuites TLS_RSA_WITH_AES_128_GCM_SHA256
    V3CipherSuites TLS_ECDH_ECDSA_WITH_AES_128_GCM_SHA256
    V3CipherSuites TLS_DHE_RSA_WITH_AES_128_GCM_SHA256
    V3CipherSuites TLS_DHE_DSS_WITH_AES_128_GCM_SHA256
    V3CipherSuites TLS_ECDHE_ECDSA_WITH_3DES_EDE_CBC_SHA
    V3CipherSuites TLS_ECDHE_RSA_WITH_3DES_EDE_CBC_SHA
    V3CipherSuites TLS_ECDH_ECDSA_WITH_3DES_EDE_CBC_SHA
    V3CipherSuites TLS_ECDH_RSA_WITH_3DES_EDE_CBC_SHA
  }
```

LASTACK for TLS ISSUES: LE issue

Add to TCPIP PROC

//CEEOPTS DD * HEAP64(10M,10M) HEAPPOOLS64(ON, 24,,48,,72,,136,,192,,272,, 568,,1056,,1584,,3008,,8096,)

INDEX

GSKKYMAN

CLI Commands

https://www.ibm.com/docs/en/zos/2.1.0?topic=syntax-gskkyman-command-line-mode-examples

```
gskkyman -dc -k filename
```

gskkyman

https://www.ibm.com/docs/en/zos/2.1.0?topic=syntax-gskkyman

https://www.ibm.com/docs/en/zos/2.1.0?topic=management-gskkyman-overview

```
gskkyman -dc|-dcv [-k filename|-t tokenname] [-l label]
gskkyman -dk [-k filename]
gskkyman -e|-i [-k filename|-t tokenname] [-l label] [-p filename]
gskkyman -g [-x days] [-cr filename] [-ct filename] [-k filename|-t tokenname] [-l
label] [-kt
 {ecgen|ecdsa|ecdh}] [-ca] [-ic]
gskkyman -h|-?

 -s [-k filename]
```

Use RENEW option 5 from menu to renew a CERTAUTH Certificate.

INDEX

CSF

GSKSRVR trace instruction

```
1. S GSKSRVR
2. TRACE CT,WTRSTART=GSKWTR
3. TRACE CT,ON,COMP=GSKSRVR
4. R n,JOBNAME=(yyy),OPTIONS=(LEVEL=255),WTR=GSKWTR,END
where yyy is the name of the TCPIP stack's jobname.
5. Recreate the error
6. TRACE CT,OFF,COMP=GSKSRVR
7. TRACE CT,WTRSTOP=GSKWTR
```

https://www.ibm.com/docs/en/ibm-mq/9.3?topic=tz-using-gskit-trace-problems-related-certificates-keys-when-using-ams-zos

https://www.ibm.com/support/pages/how-do-you-capture-ibm-system-ssl-trace-analyse-output-sci68684

https://www.ibm.com/support/pages/how-capture-and-format-ssl-component-trace

https://www.ibm.com/docs/en/developer-for-zos/9.5.1?topic=issues-gsk-ssl-trace

https://www.ibm.com/docs/en/zvm/7.1?topic=information-gsktrace-gsktrace-utility-command

https://www.ibm.com/docs/en/zos/2.1.0?topic=information-capturing-trace-data-through-environment-variables

CSF:

Crypto Card

When you specify ICSF, you must have READ authority to the CSFIQF, CSFPKI, and CSFPKRC resources.

When you specify FROMICSF, you must have READ authority to the CSFIQF and CSFPKX resources.

When you specify SIGNWITH, you must have the following access authorities:

If the private key of the signing certificate is an ECC key that is stored in the RACF data base, you must have READ authority to the CSF1PKS, CSF1PKV, CSF1TRC, CSF1TRD, and CSFOWH resources.

If the private key of the signing certificate is stored in the ICSF PKA key data set (PKDS) or in the ICSF Token Data Set (TKDS), you require additional access based on the key type, as follows:

When the key is an RSA type, you must have READ authority to the CSFDSG resource.

When the key is an ECC type, you must have READ authority to the CSF1PKV, CSF1TRC, CSF1TRD, CSFDSG, and CSFOWH resources.

https://www.ibm.com/docs/en/zos/2.1.0?topic=ssl-racf-csfserv-resource-requirements

https://www.ibm.com/docs/en/zos/2.2.0?topic=cwcucks-setting-up-profiles-in-csfserv-general-resource-class

```
S GSKSRVR
F GSKSRVR,DISPLAY CRYPTO
P GSKSRVR
```

```
D ICSF,LIST,SYSPLEX=YES
D ICSF,CARDS,SYSPLEX=YES
D ICSF,KDS,SYSPLEX=YES
D ICSF,MKS,SYSPLEX=YES
D ICSF,OPT,SYSPLEX=YES
```

INDEX

CONSOLES

CONSOLES:

HMC - OSA ADVANCED FACILITIES

PANEL

SERVER - PUT SERVER IP AND SUBNET, PORT AND DEFAULT GATEWAY

SESSION - DEFINE THEM USING LU

VALIDATE

ACTIVATE

OPEN A SESSION TO THAT IP AND PORT

```
V CCCC,CONSOLE
```

CONSOLE SHOULD COME UP

```
D C - Display Consoles
```

TN3270:

Same but look for LOCICC / Local Terminal definition and Activate it.

/dev/console

/dev/operlog

https://www.ibm.com/docs/en/zos/2.4.0?topic=files-system-console

LOGON APPLID

https://docs.bmc.com/docs/mcdv630/using-the-logon-command-856648226.html

INDEX

CTTRACE

CT TRACE:

CT Writer PROC:

//CTWTR PROC //IEFPROC EXEC PGM=ITTTRCWR,REGION=5M,TIME=1440 //TRCOUT01 DD DSNAME=yourdsn, // UNIT=SYSDA,DCB=(DSORG=PS), // SPACE=(4096,(1024,100),,CONTIG),DISP=(NEW,CATLG)

https://www.ibm.com/docs/en/ims/13.1.0?topic=commands-trace-ct-command

https://www.ibm.com/docs/en/zos/2.1.0?topic=parameters-statementsparameters-ctncccxx

WRAP

Specifies that when the system reaches the end of the data set or group of data sets, it writes over the oldest data at the start of the data set or the start of the first data set in the group. The primary extents of the data set are used.

NOWRAP

Specifies that the system stops writing to the data set or data sets when they are full. The primary and secondary extents of the data sets are used.

```
>>-TRACE--CT,-------------------------------------------------->

                          .-,WRAP---.
>----+-WTRSTART=parmlibmem-+---------+--------------+----------><
     |                    '-,NOWRAP-'              |
     +-WTRSTOP=jobname-----------------------------+
```

```
      +-ON,COMP=irlmnm--+-------------------------+-+
      |                 |        .---------.      | |
      |                 |        V         |  (1) | |
      |                 '-,SUB=(---+-DBM-+-+-)-----' |
      |                           +-EXP-+           |
      |                           +-INT-+           |
      |                           +-SLM-+           |
      |                           +-XCF-+           |
      |                           '-XIT-'           |
      '-OFF-----------------------------------------'
```

START:

```
TRACE CT,WTRSTART=CTWTR,NOWRAP
TRACE CT,ON,COMP=SYSTCPDA,SUB=(tcpip)
xx,WTR=CTWTR,END
V TCPIP,tcpip,PKT,ON,FULL,IP=ipaddr|*,SRCP=port,DEST=port

(V TCPIP,tcpip,PKT,ON,FULL,abbrev=65,IP=* to remove header)
```

STOP:

```
V TCPIP,tcpip,PKT,OFF
TRACE CT,OFF,COMP=SYSTCPDA,SUB=(tcpip)
TRACE CT,WTRSTOP=CTWTR,FLUSH

ALLOC FILE(SNIFFER) DA('HLQ.SNIFFER')
ALLOCATE DDNAME(IPCSDDIR) DSNAME('hlq.DDIR') SHR
```

https://www.ibm.com/docs/fr/zos/2.1.0?topic=command-allocate-syntax

File:

SNIFFER:

PS VB 8000 32000 50 Cyls

Trace:

VB 27994 27998 100 cyls

CTRACE COMP(SYSTCPDA) LOCAL +
OPTIONS((SESSION(DETAIL)))

INDEX

ESF Printers

```
F ESFstc,D,PRINTERNAME,V
F ESFstc,P,PRINTERNAME,V
F ESFstc,S,PRINTERNAME,V
```

JES PRINT

https://www.ibm.com/docs/en/zos/2.1.0?topic=printers-starting-printer-defined-jes2

https://www.ibm.com/docs/en/zos/2.3.0?topic=section-t-prtnnnnn-t-rnnnnnprm-control-printer

INDEX

NPF Printers

https://www.ibm.com/docs/en/zos/2.1.0?topic=introduction-network-print-facility-interfaces-vtam

https://www-40.ibm.com/servers/resourcelink/svc00100.nsf/pages/zOSV2R3SC273658/$file/halp001_v2r3.pdf

https://www.ibm.com/docs/en/zos/2.2.0?topic=introduction-overview

INDEX

JES Printers

```
$DU,PRT - Display a JES Printer
$TA,ALL
```

WS=(work_selection_criteria) Specifies the work-selection criteria for this FSA; separate each value with a comma. See the z/OS JES2 Initialization and Tuning Reference for the valid values and defaults. For a Download for z/OS FSA, consider these values: Q Specifies that the FSA selects only those data sets with the same class as specified in the CLASS or QUEUE parameter of this statement. R Specifies that the FSA selects only those data sets with the same destination name as specified in the ROUTECDE parameter of this statement. If job submitters must specify the DEST=IP JCL parameter, do not specify this work-selection parameter. This recommendation is because job submitters cannot specify a destination name in the DEST JCL parameter when they specify the DEST=IP JCL parameter. See JCL parameters for information about the DEST=IP parameter.

```
/$TPRT1,WS=(Q)
/$T prt1,ROUTECDE=(TR1,TR2)
```

INDEX

VPS

VPS

File Format KEY: SITE VARrecfm LRECL=32760 RECFM=U BLKSIZE=32760 U
0
32760

VPS

https://help.nfc.usda.gov/publications/RFQS/74756.htm

https://www.oocities.org/smtwango/MAINFRAME/MFCOMMANDS/vpscmd.html

VPS COMMANDS FOR MVS

```
      F VPS
      F VPS,ABEND
      F VPS,ACQUIRE,PRTID
      F VPS,ACTIVATE,MEMBERNAME
      F VPS,CANCEL,PRTID(D/J)
      F VPS,CLOSELOG
      F VPS,DISPLAY,(OPTIONS)
      F VPS,DIS,CMTST3ØZ       - TO DISPLAY PRINTER STATUS
      F VPS,END
      F VPS,INACTIVATE,PRTID
      F VPS,POST
      F VPS,RELEASE,PRTID
      F VPS,REPEAT,PRTID
      F VPS,REPOSITION,PRTID,A=B##### (OPTIONS)
     #DOESN'T WORK!! F VPS,RESTART,PRTID
      F VPS,SEL,PRTID,(D/C/W/F)
      F VPS,SET,PRTID,(OPT#,VALUE)
      F VPS,SNAP,PRTID
      F VPS,SSET,(OPTIONS)
      F VPS,SSTAT,(OPTIONS)
      F VPS,START,PRTID
      F VPS,STOP,PRTID,(OPTIONS)

F VPS,DISPLAY,PRTID,TCPIP
```

DISPLAY

Function: Display VPS status and option information.

Description: This command provides the facility to display option and status information pertinent to the individual VPS printers and/or the VPS System.

```
Format: F VPS,DISPLAY,EXITS
```

Display status of VPS exits (this can be coded as EXITS to see the status of all exits, as EXITnn to display the status of an individual exit, or as EXITnn-nn to display the status of a range of exits).

```
F VPS,DISPLAY,DEFAULT
```

Display options in the master printer default member.

```
F VPS,DISPLAY,prtrid,disopt1{,disopt2....,disoptn},S=status
```

Display options in a particular printer member. disoptn specifies the requested display option(s), S=status is used to filter the results of the display command to printers matching the requested status (See page 7.2 for a complete list of status (S=) options).

Only sufficient characters to make the option unique need be specified. AFP Display datastream conversion options.

DIAG: Printer diagnostic information.

EMAIL Display email options.

EXITS Display EXITnn keywords.

GRAPH: Graphics options.

HARDWARE: Hardware options.

MISC: Miscellaneous options.

OPER: Operational options.

OPTIONS: Printer options.

PROCESS: Processing statistics.

QUEUE: Queue dataset statistics/options.

REQUEUE: Requeue options.

SELECTION: Printer selection criteria.

STATUS: Printer status.

TCPIP: VTAM or TCP/IP related information.

VTAM: VTAM or TCP/IP related information.

ZIIP: ZIIP information.

*: All the above except DIAG.

```
F VPS,DISPLAY,SYSTEM
```

Display VPS system-wide options and status.

```
F VPS,DISPLAY,SYSTEM,FILESYS
```

Displays the VPS file system information.

```
F VPS,DISPLAY,SYSTEM,KEYS
```

Displays each valid LRS product key that was specified during VPS initialization.

```
F VPS,DISPLAY,SYSTEM,AFPCACHE
```

Display general information about cached AFP resources. Message VPS0931R will be issued for each resource type.

```
F VPS,DISPLAY,SYSTEM,AFPCACHE(FDEF=NAME|NAME*)
```

(PDEF=NAME|NAME*)

(OVLY=NAME|NAME*)

(PSEG=NAME|NAME*)

(FONT=NAME|NAME*)

(ID=########)

Display specific information about the specified resource(s) of the requested type. ID subparameter will display information about the resource associated with the specified unique ID. Messages VPS0932R, VPS0933R, and VPS0934R will be issued for each matching resource.

```
F VPS,DISPLAY,SYSTEM,MODULE,modid
```

Display information about a specific VPS module (e.g., load address, entry address, length).

```
F VPS,DISPLAY,SYSTEM,TASK
```

Display the status of each VPS task (system and printer tasks). Message VPS0959R will be issued for each VPS task.

```
F VPS,DISPLAY,SYSTEM,WHERE,address
```

Displays the module and offset related to a specified address.

```
F VPS,DISPLAY,SYSTEM,ZIIP
```

Display the VPS ZIIP information.

```
F VPS,DISPLAY,S=E
```

Display a list of all printers that are in an EDRAINED status.

```
F VPS,DISPLAY,VPSPRT*,S=E,TCP
```

Display the VTAM or TCP/IP related information for printers named with a prefix of VPSPRT, that are in EDRAINED status. Comments: STATUS is the default display option for a printer display if no options are specified.

```
Example: F VPS,DISPLAY,VPSPRT99,ST,SEL
```

Display status information and selection criteria for printer VPSPRT99.

END

EXPIRE

INACTIVATE

Function: Normally terminate VPS.

Description: This command will notify VPS to initiate normal termination processing.

```
Format: F VPS,END
```

Comments: This command has no operands or prtrid specification. VPS will not terminate until all printers that are currently busy complete the job that they are processing.

Example: F VPS,END

Terminate VPS normally

INDEX

SMF

https://www.ibm.com/docs/en/zos/2.1.0?topic=smf-records

https://www.ibm.com/docs/en/zos/2.1.0?topic=analyzer-collecting-smf-records

https://www.ibm.com/docs/en/zos/2.4.0?topic=smf-record-general-information-best-practices

https://www.ibm.com/docs/en/zos/2.4.0?topic=statements-smfconfig-statement

DISPLAY SMF FILES IN USE

https://www.ibm.com/docs/en/zos/2.4.0?topic=command-displaying-smf-data-smf

DYNAMICALLY ADD SMF RECORDS

https://www.ibm.com/docs/en/zos/2.2.0?topic=member-changing-smf-recording

DUMP SMF

https://www.ibm.com/docs/en/zos/2.1.0?topic=ifasmfdp-running-smf-data-set-dump-program

SMF118

https://www.ibm.com/docs/en/zos/2.3.0?topic=reference-type-118-smf-records

https://www.pacsys.com/smf/smf118_v1r13.htm

SMF118 Subtypes

https://www.ibm.com/docs/en/zos/2.1.0?topic=records-standard-subtype-record-numbers

Subtype 76

https://www.ibm.com/docs/en/zos/2.1.0?topic=records-record-type-118-76-tcpip-statistics

SMF119 Format

https://www.ibm.com/docs/en/zos/2.1.0?topic=records-common-type-119-smf-record-format#commonamf

SMF119 Subtypes

https://www.ibm.com/docs/en/zos/2.1.0?topic=records-smf-119-record-subtypes

Subtype 21

https://www.ibm.com/docs/en/zos/2.1.0?topic=t1sr-tn3270e-telnet-server-sna-session-termination-record-subtype-21#serversna

Subtype 23

https://www.ibm.com/docs/en/zos/2.1.0?topic=t1sr-tso-telnet-client-connection-termination-record-subtype-23#telnetcc

Subtype 77

https://www.ibm.com/docs/en/zos/2.1.0?topic=records-record-type-119-77-tcpip-statistics

E35

https://www.ibm.com/docs/en/zos/2.4.0?topic=exits-e35-user-exit-changing-records

ICETOOL

https://www.ibm.com/docs/kk/zos/2.1.0?topic=do-operand-descriptions-2

INDEX

FILE TRANSFERS

XMIT

SYNTAX

```
xmit user.node dsn('hlq.ql') outdsn('hlq.ql')
receive indsn('hlq.ql')
```

INDEX

Connect Direct

Manuals

https://www.ibm.com/docs/en/scfz/5.2.0?topic=zos-signon-command

https://www.ibm.com/docs/en/scfz/5.2.0?topic=command-using-signon-through-batch-interface

https://www.ibm.com/docs/en/scfz/5.2.0?topic=sessions-signing-sterling-connectdirect-zos

https://www.ibm.com/docs/en/scfz/5.2.0?topic=zos-using-signon-through-iui

https://www.ibm.com/docs/en/scfz/5.2.0?topic=iui-setting-up-signon-defaults

https://www.ibm.com/docs/en/scfz/5.2.0?topic=iui-viewing-your-current-signon-parameters

https://www.ibm.com/docs/en/connect-direct/6.1.0?topic=errors-signon-iuiapi

https://www.ibm.com/docs/en/connect-direct/6.1.0?topic=administrative-connectdirect-secure-plus-commands

https://www.ibm.com/docs/en/connect-direct/6.1.0?topic=options-adding-remote-node-record-external-authentication-server

https://www.ibm.com/docs/en/connect-direct/6.1.0?topic=administrative-connectdirect-secure-plus-commands

https://www.ibm.com/docs/en/connect-direct/6.1.0?topic=zos-enable-validate-connectdirect-secure-plus-operation

https://www.ibm.com/docs/en/connect-direct/6.1.0?topic=zos-troubleshooting

INDEX

WinSCP

winscp.exe /console

open hostname put C:/sadsad/asdad.txt HLQ.DATASET // NO QUOTES

open -passive=off ftpes://${useridpass}:$cpassword@$hostname/ call site file=jes ascii // binary put ftpjcl.txt exit

open ftpes - FTPS open ftp - FTP open - SFTP open sftp - SFTP

With FTP you can use -passive=on or off

INDEX

FTP

FTP USEFUL

Commands:

put get mput - Copies all members from a PDS to another, it should be created mget mvsput - Allocates file with same attributes and copies all members mvsget

1 AMBIGUOUS false

2 ? false

3 ACCT true

4 APPEND true

5 ASCII true

6 BINARY true

7 CD true

8 CLOSE true

9 TSO false

10 OPEN true

11 DEBUG false

12 DELIMIT false

13 DELETE true

14 DIR true

15 EBCDIC true

16 GET true

17 HELP false

18 LOCSTAT true

19 USER true

20 LS true

21 MDELETE true

22 MGET true

23 MODE true

24 MPUT true

25 NOOP true

26 PASS true

27 PUT true

28 PWD true

29 QUIT true

30 QUOTE true

31 RENAME true

32 SENDPORT true

33 SENDSITE false

34 SITE false

35 STATUS true

36 STRUCTURE true

37 SUNIQUE true

38 SYSTEM true

40 TYPE true

41 LCD true

42 LOCSITE true (see previous note in FTP subcommand codes)

43 LPWD false

44 MKDIR true

45 LMKDIR true

46 EUCKANJI true

47 IBMKANJI true

48 JIS78KJ true

49 JIS83KJ true

50 SJISKANJI true

51 CDUP true

52 RMDIR true

53 HANGEUL true

54 KSC5601 true

55 TCHINESE true

56 RESTART false

57 BIG5 true

58 BLOCK true

59 COMPRESS true

60 FILE true

61 PROXY true

62 RECORD true

63 SCHINESE true

64 STREAM true

65 GLOB false

66 PROMPT false

67 UCS2 true

68 ! true

70 DUMP false

71 VERBOSE false

72 CLEAR true

73 CPROTECT true

74 PRIVATE true

75 PROTECT true

76 SAFE false

77 CCC true

78 LANGUAGE true

79 FEATURE true

80 SRESTART true

81 AUTH true

82 mkfifo true

83 MVSGET true

84 MVSPUT true

EXAMPLE:

```
lcd 'SYS3.R31'
type i
locsite fwf
locsite lrecl=1024 recfm=fb blksize=6144
locsite track pri=350 sec=100 vol=INST04
mget *.F1 (repl
mget *.F2 (repl
mget *.SMPMCS (repl
mget *.JCL (repl
type a
locsite lrecl=80 recfm=fb blksize=3120
locsite track pri=2 sec=1 vol=INST04
mget *.TXT (repl
quit
```

SITE -FTP default QUOTE SITE -Windows LOCSITE -zOS CALL SITE -WinSCP

https://www.ibm.com/support/pages/sitelocsite-commands-mvs-ftp

TSO Syntax:

```
Ftp hostname -d -v -f "//'FTPDATA.DSN(member)'"
```

FTPDATA Search Order

https://www.ibm.com/docs/en/zos/2.2.0?topic=protocol-ftp-configuration-statements-in-ftpdata

TSO shell -f SYSFTPD DD statement tso_prefix.FTP.DATA userid.FTP.DATA /etc/ftp.data SYS1.TCPPARMS(FTPDATA) data set tcpip_hlq.FTP.DATA file

UNIX System Services shell -f $HOME/ftp.data userid.FTP.DATA /etc/ftp.data SYS1.TCPPARMS(FTPDATA) data set tcpip_hlq.FTP.DATA file

FTP TLS:

A z/OS® FTP client can use a virtual CERTAUTH key ring to authenticate the FTP server by following these steps: The user specifies the following KEYRING directive in her FTP.DATA file: KEYRING *AUTH/**

The user directs FTP to use TLS by specifying -a TLS or -r TLS on the FTP command: ftp –r TLS ftp.ibm.com -d -v -f

For PDS: cd NEXTLQ: Like if the PDS is USERID.PDS(*) You do: open hostname (working directory "HLQ.") cd PDS mput or mget

For Binary Files: https://www.ibm.com/support/pages/transfer-ptf-binary-bin-file-your-pc-mvs-system

Define the file attributes as: FB, LRECL 1024, BLKSIZE 27648 Use mput for the file transfer.

Continuation:

mvsget 'SYS3.SYNCLINK' + 'SYS3.SYNCLINK'

https://www.ibm.com/docs/en/zos/2.3.0?topic=ftp-examples-get-mget-mvsget-subcommands

FTP Client

https://www.ibm.com/docs/en/zos/2.4.0?topic=ftpdata-summary-ftp-client-server-configuration-statements

Subcommands to the server

https://www.ibm.com/docs/en/zos/2.3.0?topic=codes-ftp-subcommand batch

https://www.ibm.com/docs/en/zos/2.4.0?topic=ftp-submitting-requests-in-batch

https://www.ibm.com/docs/en/zos/2.1.0?topic=ftp-ddname-support

https://www.ibm.com/docs/en/zos/2.2.0?topic=protocol-keyring-ftp-client-server-statement

Parameters

https://www.ibm.com/docs/en/zos/2.2.0?topic=ftp-command-entering-environment

https://www.ibm.com/docs/en/zos/2.1.0?topic=ftp-preparing-environment

https://community.bmc.com/s/article/How-can-I-use-variable-names-for-my-FTP-dataset-names

https://www.ibm.com/docs/en/zos/2.2.0?topic=applications-environment-variables

NETRC

https://www.ibm.com/docs/en/zos/2.3.0?topic=ftp-netrc-data-set

https://www.ibm.com/docs/en/zos/2.1.0?topic=host-using-netrc-data-set

ENVAR

https://www.ibm.com/support/pages/specifying-tcpip-server-parameters-jcl

SYSFTPD DD statement DSN=dsnname,DISP=SHR PATH

FTPDATA CLIENT

SECURE_MECHANISM TLS TLSRFCLEVEL RFC4217 TLSMECHANISM ATTLS ; connect at TLS 1.2 or higher
SECURE_FTP REQUIRED SECURE_CTRLCONN CLEAR ; Commands may be clear (unencrypted).
SECURE_DATACONN PRIVATE ; Payload must be encrypted. EPSV4 TRUE

FTPDATA CLIENT DEBUG

DEBUG SEC DEBUG TIM DEBUG BAS DEBUG FLO DEBUG ALL

FTP to JES:

open hostname userid password prompt off quote site file=jes dir

SITE / LOCSITE / QUOTE SITE / CALL SITE

SITE VARrecfm LRECL=32760 RECFM=U BLKSIZE=32760

quote site: JESJOBNAME JESSTATUS JESOWNER

INDEX

SSH

SFTP

```
ssh -vvv -c aes256-cbc -p 8022 8.8.8.8
sftp -c aes256-cbc -P 8022 8.8.8.8
Sftp -o "StrictHostkeyChecking no"
```

https://www.ibm.com/docs/en/zos/2.4.0?topic=guide-accessing-mvs-data-sets-within-sftp
https://www.ibm.com/docs/en/zos/2.1.0?topic=utility-invoking-bpxbatch-in-batch-job

```
# sftp -h
usage: sftp -B buffer_size -b batchfile -c cipher
```

```
           -D sftp_server_path -F ssh_config -i identity_file -l limit
           -o ssh_option -P port -R num_requests -S program
           -s subsystem | sftp_server host
       sftp user@host:file ...
       sftp user@host:dir/
       sftp -b batchfile user@host
```

https://www.ibm.com/docs/en/zos/2.2.0?topic=ssftp-options

https://www.ibm.com/docs/en/zos/2.2.0?topic=program-host-key-checking

https://www.ibm.com/docs/en/integration-bus/10.0?topic=sftp-known-host-checking

SSH

```
usage: ssh options user@host command
Options:
  -4          Use IPv4 addresses only.
  -6          Use IPv6 addresses only.
  -A          Enables authentication agent forwarding.
  -a          Disables authentication agent forwarding (default).
  -C          Enables compression.
  -f          Fork into background after authentication.
  -G          Causes ssh to print its configuration after evaluating Host and Ma
tch blocks and exit.
  -g          Allow remote hosts to connect to local forwarded ports.
  -K          Enables forwarding (delegation) of GSSAPI credentials to the serve
r.
  -k          Disables forwarding (delegation) of GSSAPI credentials to the serv
er.
  -M          Places the ssh client into master mode for connection sharing.
  -N          Do not execute a shell or command.
  -n          Redirect input from /dev/null.
  -q          Quiet mode; suppress most warning and diagnostic messages.
    -q          Quiet mode; suppress most warning and diagnostic messages.
  -s          Invoke command (mandatory) as SSH2 subsystem.
  -T          Disables pseudo-tty allocation.
  -t          Force pseudo-tty allocation.
  -V          Display version number only.
  -v          Verbose mode; display verbose debugging messages.
              Multiple -v increases verbosity.
  -X          Enables X11 connection forwarding.
  -x          Disables X11 connection forwarding (default).
  -Y          Enables trusted X11 forwarding.
  -y          Send log information to syslog.
  -b addr     Local IP address.
  -c cipher   Select encryption algorithm.
  -D bind-addr:port     Enables dynamic application-level port forwarding.
  -e char     Set escape character; ``none'' = disable (default: ~).
  -E file     Append debug logs to file instead of standard error.
  -F config   Config file (default: ~/.ssh/config).
  -i file     Identity for public key authentication.
```

```
  -J user@host:port     Shortcut to specify a ProxyJump configuration direc
tive.
tive.
  -L bind_address:port:host:hostport   Forward local port to remote address.
  -L bind_address:port:remote_socket   Forward local port to remote socket.
  -L local_socket:host:hostport          Forward local socket to remote address.
  -L local_socket:remote_socket          Forward local socket to remote socket.
  -l user     Log in using this user name.
  -m macs     Specify MAC algorithms.
  -O ctl-cmd  Control an active connection multiplexing master process.
  -o 'option' Process the option as if it was read from a configuration file.
  -p port     Port to connect to on the remote host.
  -Q cipher | cipher-auth | mac | kex | key | key-cert | key-plain | protocol-ve
rsion   Queries ssh for the supported algorithms.
  -R bind_address:port:host:hostport   Forward remote port to local address.
  -R bind_address:port:local_socket    Forward remote port to local socket.
  -R remote_socket:host:hostport         Forward remote socket to local address.
  -R remote_socket:local_socket          Forward remote socket to local socket.
  -R bind_address:port                 Forward remote port to using SOCKS.
  -S ctl-path Specifies the location of a control socket for connection sharing.
  -W host:port   Requests that client standard input and output be forwarded.

ssh -Q mac and ciphers
```

KEYSCAN

```
ssh-keyscan -H -t rsa 8.8.8.8  >> ~/.ssh/known_hosts
```

```
# ssh-keyscan -h
unknown option -- h
usage: ssh-keyscan -f file -p port -T timeout -t type
                   host | addrlist namelist ...
```

KEYGEN

```
ssh-keygen -t rsa
ssh-keygen -t dsa
```

```
ssh-keygen -i -f testkey.putty.pub >>  /USERIDHOME/.ssh/authorized_keys
ssh-keygen -i -f authorized_keys >>  /u/dbbg/.ssh/authorized_keys2
```

zOS Open SSH uses BASE64 encoding.

BE CAREFUL on how it is uploaded. When you upload a key file, it might get encoded in a different way. ssh-keygen -i -m RFC4716 -f /u/user/pub >> /u/user/pubibm

```
ssh-keygen help
```

```
usage: ssh-keygen options
  ssh-keygen -q -b bits -t type -o -a rounds -N new_passphrase -C comment -f
output_keyfile
  ssh-keygen -p -P old_passphrase -N new_passphrase -f keyfile
  ssh-keygen -i -m key_format -f input_keyfile
  ssh-keygen -e -m key_format -f input_keyfile
  ssh-keygen -e -m key_format -f input_keyfile
  ssh-keygen -y -f input_keyfile
  ssh-keygen -c -P passphrase -C comment -f keyfile
  ssh-keygen -l -v -E fingerprint_hash -f input_keyfile
  ssh-keygen -B -f input_keyfile
  ssh-keygen -F hostname -f known_hosts_file -l
  ssh-keygen -H -f known_hosts_file
  ssh-keygen -R hostname -f known_hosts_file
  ssh-keygen -r hostname -f input_keyfile -g
  ssh-keygen -G output_file -v -b bits -M memory -S start_point
  ssh-keygen -T output_file -f input_file -v -a rounds -J num_lines -j start_line
-K checkpt -W generator
  ssh-keygen -s ca_key -I certificate_identity -h -U -n principals -O option -V
validity_interval -z serial_number¨ file
...
  ssh-keygen -L -f input_keyfile
  ssh-keygen -A
  ssh-keygen -k -f krl_file -u -s ca_public -z version_number file ...
  ssh-keygen -Q -f krl_file file ...
Options:
  -A          Generate non-existent host keys for all key types.
  -a rounds   Number of KDF rounds used or number of tests for screening DH-GEX
moduli (with -T).
  -B          Show bubblebabble digest of key file.
  -b bits     Number of bits in the key to create.
 -C comment  Provide new comment.
 -c          Change comment in private and public key files.
 -d          Same as '-t dsa'; Specifies dsa type key.
 -E          Display key fingerprints using hash algorithm: md5 |sha256
 -e | -x     Export OpenSSH to foreign format key file.
 -F hostname Find hostname in known hosts file.
 -f filename Filename of the key file.
 -G file     Generate candidates for DH-GEX moduli.
 -g          Use generic DNS resource record format.
 -H          Hash names in known_hosts file.
 -h          Generate host certificate instead of a user certificate.
 -I key_id   Key identifier to include in certificate.
 -i | -X     Import foreign format to OpenSSH key file.
 -J number   Screen this number of moduli lines.
```

```
  -j number   Start screening moduli at specified line.
  -K checkpt  Write checkpoints to this file.
  -k          Generate a KRL file.
  -L          Print the contents of a certificate.
  -l          Show fingerprint of key file.
  -M memory   Amount of memory (MB) to use for generating DH-GEX moduli.
  -m key_fmt  Conversion format for -e/-i (PEM|PKCS8|RFC4716).
  -N phrase   Provide new passphrase.
  -n name,... User/host principal names to include in certificate
  -O option   Specify a certificate option.
 -o           Save private keys using the new OpenSSH format.
 -P phrase    Provide old passphrase.
 -p           Change passphrase of private key file.
 -Q           Test whether key(s) are revoked in KRL.
 -q           Quiet.
 -R hostname Remove host from known_hosts file.
 -r hostname Print DNS resource record.
 -S start    Start point (hex) for generating DH-GEX moduli.
 -s ca_key   Certify keys with CA key.
 -T file     Screen candidates for DH-GEX moduli.
 -t type     Specify type of key to create: dsa | ecdsa | ed25519 | rsa
 -U          Indicates that a CA key resides in a ssh-agent.
 -u          Update KRL rather than creating a new one.
 -V from:to  Specify certificate validity interval.
 -v          Verbose.
 -W gen      Generator to use for generating DH-GEX moduli.
 -y          Read private key file and print public key.
 -z serial   Specify a serial number.
```

Configuration File:

```
Host hostname
   Port 22
   IdentityFile ~/.ssh/id_rsa
```

Start from UNIX:

```
# Start the SSH daemon
_BPX_JOBNAME='SSHD' /usr/sbin/sshd -f /etc/ssh/sshd_config 2>/dev/console &
```

```
# Start the sftp daemon
_BPX_JOBNAME='SSHDF' /usr/sbin/sshd -f /etc/ssh/sftpd_config 2>/dev/console &
```

https://askubuntu.com/questions/123072/ssh-automatically-accept-keys

https://serverfault.com/questions/638600/auto-accept-rsa-key-fingerprint-from-command-line

https://stackoverflow.com/questions/21383806/how-can-i-force-ssh-to-accept-a-new-host-fingerprint-from-the-command-line#comment108409638_53672867

https://www-01.ibm.com/servers/resourcelink/svc00100.nsf/pages/zOSV2R4sc276806/$file/foto100_v2r4.pdf

https://www.ibm.com/support/pages/example-batch-sftp-script

https://www.ibm.com/docs/en/zos/2.3.0?topic=administrators-starting-sshd-daemon

https://www.ibm.com/docs/en/zos/2.3.0?topic=SSLTBW_2.3.0/com.ibm.zos.v2r3.foto100/bpxstart.htm

https://www.ibm.com/docs/en/zos/2.3.0?topic=SSLTBW_2.3.0/com.ibm.zos.v2r3.foto100/fotz118.htm

https://www.ibm.com/docs/en/zos/2.3.0?topic=SSLTBW_2.3.0/com.ibm.zos.v2r3.foto100/fotz117.htm

https://www.ibm.com/docs/en/zos/2.3.0?topic=daemon-restarting-sshd-without-bringing-it-down

https://www.ibm.com/docs/en/zos/2.2.0?topic=descriptions-zos-openssh

https://www.ibm.com/docs/en/zos/2.3.0?topic=daemon-ways-start-sshd-as-stand-alone

INDEX

RACF

Common

https://www.ibm.com/docs/en/zos/2.4.0?topic=reference-racf-command-syntax

https://www.ibm.com/docs/en/zos/2.2.0?topic=reference-racf-tso-commands

Commands:

RLIST

https://www.ibm.com/docs/en/zos/2.4.0?topic=syntax-rlist-list-general-resource-profile#rlist

RACDCERT

https://www.ibm.com/docs/en/zos/2.4.0?topic=syntax-racdcert-manage-racf-digital-certificates#radcertg

Refresh Classes:

https://www.ibm.com/docs/en/zos/2.4.0?topic=racf-refreshing-classes

Roles:

https://www.ibm.com/docs/en/zos/2.2.0?topic=guide-racf-auditor

https://www.ibm.com/products/zsecure-audit

https://www.ibm.com/docs/en/szs/2.2.1?topic=racf-overview

```
TSO LU
TSO LU OMVS NORACF
TSO RACDCERT ID(*) LIST(LABEL())
TSO RACDCERT ID(*) LISTCERT(*)
TSO RACDCERT ID(*) LISTCHAIN(LABEL())
```

```
TSO RVARY LIST           / BASES
TSO RACDCERT ID(TCPIP) LIST(LABEL('ROOT'))
TSO RACDCERT ID(userid) LISTring(ring)
TSO RACDCERT SITE LIST(LABEL'ASD'))
```

http://www.redbooks.ibm.com/redbooks/pdfs/sg248041.pdf

```
RACF 0207 RECORD TYPE - grabs all types of certs: CERTAUTH
RACDCERT CERTAUTH LIST
RACDCERT SITE LIST
```

CHECK CERTIFICATE ON DSN:

```
racdcert checkcert('HLQ.CERT') password('pass')
```

Tsolib activate uncond ddname=('zdp.load')

INDEX

Certificates

Certificate Work:

https://www.ibm.com/docs/en/zos/2.1.0?topic=applications-setting-up-your-certificate-environment

RACF INSERT CERTIFICATE:

```
RACDCERT CERTAUTH ADD('dataset') TRUST +
WITHLABEL('label')
```

RACF REMOVE FROM RING:

```
RACDCERT ID(id) REMOVE(CERTAUTH LABEL('label') RING(ringname)
```

ACTIVATE CLASSES:

''' SETROPTS CLASSACT(DIGTCERT DIGTRING) '''

REFRESH CLASSES:

''' SETROPTS RACLIST(DIGTCERT DIGTRING) REFRESH '''

EXPORT CERTAUTH CERT:

```
//SYSTSIN DD DATA
RACDCERT EXPORT(LABEL('CERTLABEL')) -
CERTAUTH DSN(HLQ.CERT)
/*
```

https://www.ibm.com/docs/en/zos/2.1.0?topic=syntax-racdcert-export-export-certificate-package

EXPORT PERSONAL CERT:

```
//SYSTSIN DD DATA
RACDCERT EXPORT(LABEL('CERTLABEL')) -
ID(IBMTCP) DSN(HLQ.CERT)
/*
```

ROOT Certificate Creation:

''' RACDCERT CERTAUTH GENCERT +
SUBJECTSDN(CN('ROOT')) + WITHLABEL('ROOT') +
KEYUSAGE(CERTSIGN) +
NOTAFTER(DATE(yyyy-mm-dd))
'''

Self Signed Certificate Creation:

```
RACDCERT ID(user) GENCERT +
    SUBJECTSDN(CN('certcn')) +
    WITHLABEL('certlabel') +
    SIGNWITH(CERTAUTH LABEL('rootlabel')) +
    NOTAFTER(DATE(date))
```

TRUST Certificate:

```
RACDCERT ALTER(LABEL('certlabel'))  +
    ID(TCPIP) TRUST
```

CONNECT Certificate to Ring:

```
RACDCERT ID(TCPIP) +
   CONNECT(ID((user) LABEL('certlabel') +
   RING(ringname)
  SETROPTS RACLIST(DIGTCERT, DIGTRING) REFRESH
```

Full Certificate Connect Process with RDATALIB Creation:

```
RACDCERT ID(user) ADDRING(ringname)
RACDCERT ID(user) CONNECT(SITE LABEL('certlabel') +
RING(ringname) USAGE(PERSONAL) DEFAULT
RACDCERT ID(user) CONNECT(CERTAUTH LABEL('intcalabel') +
RING(ringname) USAGE(CERTAUTH)
RACDCERT ID(user) +
CONNECT(CERTAUTH LABEL('rootcalabel') +
RING(user) USAGE(CERTAUTH)
RDEF RDATALIB user.ringname.LST OWN(RESOURCE)
PE user.ringname.LST CL(RDATALIB) ID(user,user2) AC(C)
SETR REFRESH RACLIST(RDATALIB)
RACDCERT ID(user) LISTRING(*)
RL RDATALIB user.ringname.LST AUTH
```

INDEX

ACF2

Usual

```
T PROF(USER) DIV(KEYRING)
T PROF(USER) DIV(CERTDATA)
LIST USERID.RING
LIST USERID.CERT
```

```
T RES(FAC)
L IRR
t res(fac)
t res(rda)
l user
chkcert
set profile(user) div(omvs)
list uid
```

ACF2 LIST ALL RINGS:

```
T PROF(USER) DIV(KEYRING)
LIST LIKE(-)
```

ACF2 LIST ALL CERTS:

```
T PROF(USER) DIV(CERTDATA)
LIST LIKE(-)
```

omvs Keyring CERTDATA

Chkcert

```
ACF2
CHKCERT certificaterecord CHAIN - will show the certificate chain
```

```
ACF2
CHKCERT DSN('frank01.mycert') password('pass')
```

```
F ACF2,REBUILD(usr),class(p)
F ACF2,OMVS
F ACF2,RESET(UID)
```

```
F ACF2,REBUILD(USR),CLASS(P)
F ACF2,OMVS(CERTDATA)
F ACF2,REBUILD(FAC)
```

INDEX

ACFCERT

```
CHA keyringdata DEFAULT(certdata)
```

```
INSERT USING(oldring) newring
```

$KEY(USERID) TYPE(RDA) RINGNAME.LST UID(UID) SERVICE(READ) ALLOW

$KEY(IRR) TYPE(FAC) DIGTCERT.LIST UID(ID) SERVICE(READ) ALLOW DIGTCERT.LISTRING UID(ID) SERVICE(READ,UPDATE) ALLOW

$KEY(APPLID) TYPE(APL) UID(ID) ALLOW

Export {logonid|logonid.suffix} DSname(data-set-name) [Label(label)] [Format(CERTDER|CERTB64|PKCS12DER|PKCS12B64|PKCS7DER|PKCS7B64)] [Password(password)]

Command Input:

```
EXPORT FRANK01.CERT DSNAME(MYCERT)
```

https://www.ibm.com/docs/en/zos/2.1.0?topic=gime-importing-certificate-from-file-as-trusted-ca-certificate

https://techdocs.broadcom.com/us/en/ca-mainframe-software/security/ca-acf2-for-z-os/16-0/administrating/digital-certificate-support.html

https://techdocs.broadcom.com/us/en/ca-mainframe-software/security/ca-acf2-for-z-os/16-0/administrating/digital-certificate-support/process-digital-certificates-with-ca-acf2.html

https://knowledge.broadcom.com/external/article/18198/does-acf2-support-virtual-keyrings.html

https://knowledge.broadcom.com/external/article/94292/how-do-we-specify-keyring-name-in-a-batc.html

INDEX

JCL

REUSABLE

https://www.ibm.com/docs/en/zos-basic-skills?topic=sample-reusable-jcl-deleting-some-vsam-clusters

FileAid

https://docs.bmc.com/docs/bcfamvs/2101/sample-jcl-statements-1014793496.html

https://www.techagilist.com/mainframe/jcl/fileaid-in-batch-mode-with-examples/

SDSF Commands over batch:

https://www.ibm.com/docs/en/zos/2.1.0?topic=reference-jcl-command-statement

https://www.ibm.com/docs/en/zos/2.3.0?topic=d-syntax-7

https://www.ibm.com/docs/en/zos/2.3.0?topic=d-examples-command-statement

https://www.ibm.com/docs/en/zos/2.3.0?topic=batch-invoking-sdsf-in

INDEX

Parameters

DCB:

https://www.ibm.com/docs/en/zos/2.1.0?topic=parameter-examples-dcb

https://www.ibm.com/docs/en/zos/2.2.0?topic=dp-syntax-2

https://www.ibm.com/docs/en/zvm/7.2?topic=reference-device-characteristics

https://ibmmainframes.com/references/disk.html

https://www.ibm.com/docs/en/zos/2.2.0?topic=requirements-step-1-number-tracks-required

//DD1 DD DSNAME=ALP,DISP=(,KEEP),VOLUME=SER=44321, // UNIT=3400-6,DCB=
(RECFM=FB,LRECL=240,BLKSIZE=960, // DEN=1,TRTCH=C)

1 Cyl = 15 Tracks 1 Track = 25 Blocks

1 Cylinder = 55,996 * 15 = 839,940 bytes. so 1000 cylinders = 839,940 * 1000
1 Megabyte = 1,048,576 (2 to the 20th power) bytes. 1000 cylinders = (839,940 * 1000) / 1,048,576 = 801.029 MB 1 terabyte = 2 to the 40th power or approximately a thousand billion bytes (that is, a thousand gigabytes). 1000 cylinders = (839,940 * 1000) / (1,048,576 * 1,048,576) = .000763 Terabytes

SET statement

https://www.ibm.com/docs/en/zos/2.1.0?topic=description-examples-set-statement

TYPRUN

https://www.ibm.com/docs/en/zos/2.2.0?topic=parameter-example-typrun

https://www.ibm.com/docs/en/zos/2.2.0?topic=statement-typrun-parameter

```
S PROC,TYP=EXEC
```

INDEX

FileAid

https://docs.bmc.com/docs/bcfamvs/2101/sample-jcl-statements-1014793496.html

https://www.techagilist.com/mainframe/jcl/fileaid-in-batch-mode-with-examples/

SDSF

https://www.ibm.com/docs/en/zos/2.1.0?topic=reference-jcl-command-statement

https://www.ibm.com/docs/en/zos/2.3.0?topic=d-syntax-7

https://www.ibm.com/docs/en/zos/2.3.0?topic=d-examples-command-statement

https://www.ibm.com/docs/en/zos/2.3.0?topic=batch-invoking-sdsf-in

---

BPXBATCH:

https://www.ibm.com/docs/en/zos/2.1.0?topic=utility-invoking-bpxbatch-in-batch-job

https://www.ibm.com/docs/en/zos/2.1.0?topic=command-entering-long-shell

https://www.ibm.com/docs/en/zos/2.1.0?topic=job-example-running-shell-command-in-batch

https://www.ibm.com/docs/en/zos/2.1.0?topic=bpxbatch-ways-define-stdparm

https://www.ibm.com/docs/en/zos/2.1.0?topic=utility-passing-parameter-data-bpxbatch#batstdparm

---

REXX

https://ibmmainframes.com/about51007.html

https://www.ibm.com/docs/en/zos/2.1.0?topic=ir-using-irxjcl-run-rexx-exec-in-mvs-batch

https://www.ibm.com/docs/en/zos/2.1.0?topic=routine-exec-block-execblk

---

VSAM:

Use IDCAMS.

REPRO to create another. Use LIKE to replicate. DELETE LISTCAT ALL ENTRIES(DATASET-NAME)

https://www.ibm.com/docs/en/zos/2.4.0?topic=de-delete-key-sequenced-vsam-cluster-in-catalog-example-6

https://www.ibm.com/docs/en/zos/2.4.0?topic=de-delete-key-sequenced-vsam-cluster-in-catalog-example-6

https://www.ibm.com/docs/en/zos-basic-skills?topic=sample-reusable-jcl-deleting-some-vsam-clusters

---

SMPE

HTTPS

```
 <ORDERSERVER
    inventory="all"
    url="https://ws-prod.bmc.com/smpe"
    keyring="USERID/RINGNAME"
    certificate="BMC CERT">
 </ORDERSERVER>
//SMPCLNT DD *
```

```
  <CLIENT
     javahome="/usr/lpp/java/J8.0_64"
     classpath="/usr/lpp/smp/classes"
     downloadmethod="https"
     downloadkeyring="javatruststore">
  </CLIENT>
```

RACF RING: keyring="USERID/RINGLABEL"

ACF2 RING: keyring="USERID/RINGLABEL"

USER.RING LABEL=RINGNAME keyring="USER/RINGNAME"

FTP

```
 <CLIENT>
  <FTPOPTIONS>
    -d -v -f "//'FTPDATADATASET'"
  </FTPOPTIONS>
</CLIENT>
```

Useful

XEQ

```
$DN,Q=XEQ
$P XEQ
QUIT XEQ nodename
$S XEQ
```

JCL: /*XEQ nodename

---

curl

// on Windows curl.exe -H "Content-Type:application/json" -d "{'text':'Hello World'}"

// on macOS or Linux curl -H 'Content-Type: application/json' -d '{"text": "Hello World"}'

COPY /etc/ and /var/

cp -r /etc/ /u/users/user/etc diff -R /etc/ /u/users/user/etc/

SETPROG LLA REFRESH

PAGE DATASETS

D ASM PA NONVIO=SYS1.NEW.PAGE

VMCF:

```
F VMCF,DISPLAY,NAME=*
F TNF,DISPLAY,NAME=*
F VMCF,REMOVE,NAME=*
F TNF,REMOVE,NAME=*
PROCLIB()
```

ISPF Commands =x =xall x all f str

Remove all lines: x all f asssdsad all x '//*' all

Command line on Top: ISPF - Main Panel - Option 0 - Command line on Bottom

---

UTILS: Copy PDS - CO / S * Save in View Mode: rep .zf .zl samemembername

---

Check VTOC config: In 3.4 put the Volume Serial Put a v in the command line

---

DB2 db2 catalog tcpip node DB2SYSTEM remote HOSTNAME server 5002 db2 catalog dcs database DB2SYSTEM_SYS as DB2SYSTEM_SYSTEM db2 catalog database DB2SYSTEM_SYS as DB2SYSTEM_SYS at node DB2SYSTEM authentication server_encrypt

---

DUMPS: D D,L - will tell you the available dump datasets

dump comm=(high CPU) - (tcpip cpu) r xx,jobname=(TCPIP),sdata=(RGN,CSA,PSA,TRT,LSQA),end

---

SDSF:

PRINT PRINT CLOSE XDC

IOF:

SD N next to output SNAPCLOS

SD DSN('HLQ.MEMBER') CAPTURE ROWS(4000) COLS(512) SNAPCLOS

IOF

https://www.triangle-systems.com/doc/7j/UG7JC13.HTM

https://www.fisc.com/support/docs/IOF@8FUserGuide16.pdf

SD N NEXT TO JOB SNAPCLOS

LONG - Extended command

IOF ed - edit JCL

SDSF sj - edit JCL

IOF SDSF PANEL SN - Start node DL - Dsiaply Node status DC - Display connect information DP - Display Path information

ISPF PANEL:

https://www.ibm.com/docs/en/zos/2.1.0?topic=services-browse-browse-data-set

https://share.confex.com/share/117/webprogram/Handout/Session9764/S9764%20-%20ISPF%20Panels%20Advanced.pdf

ISPCMDS

PANELID - Will show the Panel ID and you can invoke it

ISPF How to know what is the panel you are on: PANELID ON - Will show the Panel ID to invoke

http://www.techtricky.com/useful-list-of-tso-ispf-commands/

http://www.techtricky.com/iebcopy-in-jcl-with-examples/

https://ibmmainframes.com/about64370.html

1. To view the structure (details like starting position, end position, length and type of fields) of a copybook – This can be viewed from FILEAID option 8.

2. To Copy a member from one PDS to Another:

Open the first PDS using 3.4, and type C before the member and ENTER it will ask for the target PDS name, there give the PDS name.It will be copied by creating the Member with same name.

3. To copy one entire PDS to another New PDS

Open the source PDS using 3.4 option, and type CO before PDS name, then it will ask for the target PDS, Give the target PDS, it creates and copies the source to Target.

Note: Once you give the CO and press enter it displays all the members in that PDS. There you can select the members you want to copy by giving the S before to that member.If you want to copy all the members give S * in the command line then it selects all the members in that PDS.

4. In TSO to search a member from all of your PDS’s

Go to 3.4 Type one PDS in your list Append all your PdS in your list by using Append command Type MEM “MBR Name” in the command line. The result will show the datasets contains that particular member.

5. If you want to find all the members contain a particular string, Then

Open the PDS using 3.4 Type SRCHFOR ‘string’ in the command line. It shows all the members containing that string(press enter by putting the cursor on the PROMPT) 6) TSO ISPVCALL STATUS to view the version of the system software.

In SPOOL give the command /d prod. It gives the versions of system and sub systems.

7. TSO command to find the latest version of the GDG.

TSO LISTCAT LVL(GDG.BASE)

8. While trying to open any member in a PDS, we sometimes come across

“member in use” message. In that situation, if you want to know who is using the member currently, press F1 twice.

9. Suppose you are in a ISPF Screen and want to know in which TSO Region (Development, Production, or other TSO regions) you are now .

Issue on the command line : SAREA

10. To find the last datasets that you have accessed.

GO TO ISPF 3.4 option. On the top, there is a MENUBAR. Select REFLIST Select Option 1 in it. Using this option you can find out the last 30 datasets that you have accessed.

11. To replace a string in a Program/member

Type C ALL ‘string1’ ‘string2’

12. To replace a string in a program from specific line number(linenum1) to another line number(linenum2)

– Put .A at linenum1 & .B at linenum2

– Type C ALL ‘string1’ ‘string2’ .A .B

It replaces all string1 with strng2 between the two line numbers(not the entire program)

13. If you open the multiple screens in ISPF, to navigate between those you need to type the below commands:

If you want open the 1st screen type 1 in command line and press F9, for 2nd screen 2 and F9 etc.

If you want to see all the opened screens type LIST and press F9. Type S before the screen you want to open and press enter.

Active ISPF Logical Sessions

. Start a new screen . Start a new application

Application Name

ID Name Panelid Applid Session Type

S 1 FMDB2 FMN2P2EZ FMN2 3270 . 2* DSLIST ISRUDSM ISR 3270 . 3- ISFPCU41 ISF 3270 14) To purge multiple jobs in SDSF:

Enclose all the jobs that needs to be purged with ‘//’ and ‘//P’ as shown below and press enter which inturn purges all the enclosed spool listings.

NP JOBNAME JobID Owner Prty Queue C Pos SAff ASys Status // JB001A JBU00001 USER 1 PRINT 3117 JB001A JBU00002 USER 1 PRINT 3118 JB001B JBU00003 USER 1 PRINT 3119 //P JB001C JBU00004 USER 1 PRINT 3122

15. ISPF Log can be view from Option 7.5 . It gives the latest performed operations.

Command ===> Scroll ===> CSR ********** Top of Data ********** Time *** ISPF transaction log *** Us

01:26 Start of ISPF Log - - - - Session # 229 ---------- 01:30 TSO - Command - - HRECOVER 'MG001A.CMD.SOURCE(MEM001)' 01:35 Utility - Move/Copy - MG001A.CMD.SOURCE(MEM001)' Copied 01:35 - to 'MG001A.CMD.BKUP(MEM001)'' 01:35 Utility - Delete - ''MG001A.CMD.BKUP(MEM002)' deleted from volume PR 01:35 TSO - Command - - %@SDSF 01:36 TSO - Command - - MAP 01:37 TSO - Command - - MAPLIST 01:44 TSO - Command - - COMPARE SESSION 02:11 TSO - Command - - ISPVCALL STATUS ********** Bottom of Data **********

/D PARMLIB /$D PROC /

INSTALL PRODUCT RECEIVE TSO

https://www.ibm.com/docs/en/sia?topic=i-uploading-adapter-package-4 FB LRECL 80

Use PCOMM Send File

---

https://www.ibm.com/docs/en/zos/2.1.0?topic=command-displaying-device-status-allocation

D U,VOL=VOLSER D U{[,deviceclass][,ONLINE][,[/]devnum[,nnnnn]] } [,OFFLINE][,[/]devnum[,nnnnn]]
[,ALLOC][,[/]devnum[,nnnnn]]
[,AUTOSWITCH|AS][,[/]devnum[,nnnnn]][SYS=sysname]
[,UNAVAILABLE|UNAVAIL][,[/]devnum[,nnnnn]] (See Note)

{,IPLVOL}

{,VOL=volser}

[,L={a|name|name-a}]

CF CHP(id),ONLINE/OFFLINE V dev,OFFLINE,FORCE (if boxed) D M=DEV() D M=CPU D M=CHP() D U,ALL,ONLINE

Edx //*

OPUT mvs_data_set_name | mvs_data_set_name(member_name) 'pathname' BINARY | TEXT CONVERT(character_conversion_table | YES | NO)

OGET 'pathname' mvs_data_set_name | mvs_data_set_name(member_name) BINARY | TEXT CONVERT(character_conversion_table | YES | NO)

https://www.ibm.com/docs/en/zos/2.4.0?topic=tc-oput-copy-mvs-data-set-member-into-zos-unix-file

https://www.ibm.com/docs/en/zos/2.4.0?topic=tc-oget-copy-zos-unix-files-into-mvs-data-set

---

SAR

Recover TAPE "no mount authority" L - enter - JCL created - PF3 and PF3 again, use jobcard and get it mounted

(If on TAPE) Put an L beside the job and hit enter PF3 twice Enter Jobcard and submit Once the job completes, bago back into SAR and the report will be on disk

---

UNIX

mv -R directorya directoryb

https://www.ibm.com/docs/en/zos/2.1.0?topic=files-renaming-moving-file-directory

pax -rw /u/users/seba/stuff /u/users/guerra/stuff - it gets copied into /u/users/guerra/stuff

https://www.ibm.com/docs/en/zos/2.4.0?topic=sets-copying-files-within-zos-unix-file-system

https://www.ibm.com/docs/en/zos/2.4.0?topic=descriptions-pax-interchange-portable-archives

https://ibmmainframes.com/about49289.html

https://www.tutorialspoint.com/unix_commands/pax.htm

https://www.computerhope.com/unix/upax.htm

cp copy file

https://www.ibm.com/docs/en/zos/2.4.0?topic=descriptions-cp-copy-file

USS Copy files

https://www.ibm.com/docs/en/zos/2.4.0?topic=sets-copying-files-within-zos-unix-file-system

https://www.ibm.com/docs/en/zos/2.4.0?topic=zufs-copying-data-between-zos-unix-file-system-mvs-data-sets

https://www.ibm.com/docs/en/zos/2.4.0?topic=sets-copying-data-using-zos-shell-commands

https://www.ibm.com/docs/en/zos/2.4.0?topic=sets-copying-data-using-tsoe-commands

https://www.ibm.com/docs/en/zos/2.1.0?topic=set-example-using-jcl-ocopy

https://www.ibm.com/docs/en/zos-basic-skills?topic=sample-reusable-jcl-copying-load-module

---

TSO LOCATE MODULE

d prog,lnklist SETPROG LNKLST,DEFINE,NAME=new,COPYFROM=old SETPROG LNKLST,ADD,NAME=new,DSNAME=HLQ.QL,VOLUME=XXXXXX,ATTOP SETPROG LNKLST,ACTIVATE,NAME=new

---

TSOE:

https://www.ibm.com/docs/en/zos/2.1.0?topic=commands-continuing-command-another-line

https://www.ibm.com/docs/en/zos/2.4.0?topic=syntax-line-continuation

Tsocmd - from shell SSH

https://www.ibm.com/docs/en/zos/2.4.0?topic=scd-tsocmd-run-tsoe-command-from-shell-including-authorized-commands

---

IMS

https://www.ibm.com/docs/en/ims/15.1.0?topic=commands-display

https://www.ibm.com/docs/en/ims/14.1.0?topic=commands-display-status-command

https://www.ibm.com/docs/en/ims/14.1.0?topic=commands-display-act-command

https://www.ibm.com/docs/en/ims/15.1.0?topic=problems-input-queuing-schedulingtermination-in-dbdc-dcctl-environments

https://www.ibm.com/docs/en/ims/13.1.0?topic=commands-display-node-command

https://www.ibm.com/docs/en/ims/13.1.0?topic=commands-status-attributes-display-command

---

List all members

https://ibmmainframes.com/about20083.html

https://ibmmainframes.com/about35401.html

https://ibmmainframes.com/about30765.html

Copy all members

https://ibmmainframes.com/about67133.html

https://www.ibm.com/docs/en/zos/2.3.0?topic=examples-example-1-copy-entire-data-set

https://www.ibm.com/docs/en/zos/2.2.0?topic=ie-example-3-copy-replace-selected-members-data-set

http://www.techtricky.com/iebcopy-in-jcl-with-examples/

http://www.techtricky.com/useful-list-of-tso-ispf-commands/

/ 17 s *

3. To copy one entire PDS to another New PDS

Open the source PDS using 3.4 option, and type CO before PDS name, then it will ask for the target PDS, Give the target PDS, it creates and copies the source to Target.

Note: Once you give the CO and press enter it displays all the members in that PDS. There you can select the members you want to copy by giving the S before to that member. If you want to copy all the members give S * in the command line then it selects all the members in that PDS.

CANCEL THEN FORCE ARM THEN FORCE

D A,L D A,STC - Get Address Space CANCEL STC FORCE STC,A=addressspace,ARM FORCE STC,A=addresspace If the STC is in STARTING status: D A,STARTING CANCEL STARTING,A=addressspace FORCE STARTING,A=addresspace,ARM FORCE STARTING,A=addresspace

FORCE ARM

https://www.ibm.com/docs/en/zos/2.4.0?topic=reference-force-command

https://www.ibm.com/docs/en/zos/2.2.0?topic=fc-parameters

STOP TCPIP /FORCE TCPIP,ARM

TSO PRINTDS('HLQ.QL') TSO PRINT DS('HLQ.QL')

IPCS

DEFINE CLUSTER(NAME('userid.DDIR') VOLUMES(VSAMnn) REUSE) INDEX(NAME('userid.DDIR.I') TRACKS(1 1)) DATA(NAME('userid.DDIR.D') CYLINDERS(1 1) KEYS(128 0) RECORDSIZE(384 3072))

IPCSDDIR 'userid.DDIR' ALLOCATE DDNAME(IPCSDDIR) DSNAME('userid.DDIR') SHR ALTLIB ACTIVATE APPLICATION(CLIST) DA('SYS1.SBLSCLI0')

After doing all this, you can now EX the IPCS panel using this TSO command: EX 'SYS1.SBLSCLI0(BLSCLIBD)'

VM:

https://www.ibm.com/docs/en/zvm/7.2?topic=osas-removing-osa-from-system

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AF OPER

Afs -start Afc -cycle Afp -stop

Check Unix SS Path: echo $PATH

hostname -g pasearch -t curl Java -version

find / -name known_hosts

https://www.ibm.com/docs/en/aix/7.1?topic=files-finding-find-command

_BPX_JOBNAME='SSHD' /usr/sbin/sshd

ls -al sudo apt update. - update your libraries sudo apt install finger finger userid. - inspects another user

grep. - it is used after a pipe |. So like ip address | grep eth0 awk - also after pipe ip address | grep eth0 | awk '{print $2}' resolvectl status. - resolver info

pasearch -t | grep 'policyRule'

ping -c (count how many pings) -s (size of the packet

whois whoami whatis. - gives some info man - manual command which. - will tell you where the program is (one place) whereis - will tell you all places the program is uname -a -os information df -H. - disk space ps -aux. -will give you all running processes kill -9 psid. - -9 is force pkill -f processname

cat. -reads the whole thing less - read page by page (much better) head - read only beginning tail - read only end cmp - compares 2 files and tells you if it has differences diff - compares 2 files and will tell you what the difference is sort - sorts in alphabetical order find / -name "". - it is find then in which directory then the name of the file

Find hidden files: find . -type f -name "."

Find empty directories: find . -type f -empty

Find executables find . -perm /a=x

netstat tulpn

cat file | sort. - using | or pipe command lets you add to the command

ssh-keygen -A. - will create a set of hosts keys ssh-keygen -f "home/.ssh/known_hosts" -R hostname. - will remove that host key

rm. Remove file rm -r directory. - using the -r for recursive it deletes directories that are not empty rmdir remove dir rm filename.* / or filen* will delete filen+anycharacter, like rm ssh_host_* mkdir cp cp -r . /newdir. - will copy all files including hidden ones mv move a file - cut ln -s filename path. -this is to link, create a link to a file -s is for soft clear

su userid. - you can access another user credential passwd. - change your password sudo passwd userid. - change someone elses pass

touch filename{1…10} -will create 10 files called filename1 to 10 touch -d tomorrow filename. -the -d means it will specify the date of creation

echo "something" > file. -this will add the text into that file

vim I to start inserting text Esc to stop ;wq to write quit

curl http > filename. - downloads to a file

Create bash for sftp:

mkdir /u/users/$userid chgmod 755 /u/users/$userid chgown $userid /u/users/$userid mkdir /u/users/$userid/.ssh chgmod 755 /u/users/$userid/.ssh chgown $userid /u/users/$userid/.ssh ssh-keygen -t

rsa -f /u/users/$userid/.ssh/ chgown $userid /u/users/$userid/.ssh/id_rsa cp -r /u/users/otheruser/. /u/users/$userid

Create bash for checking policies:

cat /etc/pagent/pagent_TTLS.conf pasearch -t

Create bash for checking directories:

cd /tmp/ cd /etc/

Just take it from BPXPRMxx

Cmd1; cmd2 - run next command

Cmd1 && cmd2 - run next only if successful

Cmd1 || cmd2 - run next only if fail

JES2 Commands:

```
$P LINE(2-*)
$S LINE(40)
```

https://www.ibm.com/docs/en/zos/2.3.0?topic=section-p-linennnnn-stop-line

$DPROC

$SUBMIT

https://www.ibm.com/docs/en/zos/2.4.0?topic=section-submit-submit-member-from-submitlib

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SSL JAVA

https://www.ibm.com/docs/en/db2/9.7?topic=ssl-configuring-java-runtime-environment-use

https://www.ibm.com/docs/en/db2/11.1?topic=ssl-configuring-java-runtime-environment-use

https://www.ibm.com/docs/pt/sim/6.0.0.22?topic=middleware-configuring-ssl-websphere-application-server

https://www.ibm.com/docs/en/cics-ts/5.3?topic=sja-configuring-ssl-tls-liberty-jvm-server-using-java-keystore

https://www.ibm.com/docs/en/db2/11.5?topic=ssl-configuring-java-runtime-environment-use

https://www.ibm.com/docs/en/db2/10.1.0?topic=ssl-configuring-java-runtime-environment-use

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SETPROG APF,ADD,DSN=load.new ,VOLUME= newvol

Windows:

ipconfig /all Find string on any command: ipconfig /all | findstr dns ipconfig /release - /renew ipconfig /displaydns | clip - copies output to clipboard ipconfig /displaydns | clip ipconfig /flushdns nslookup hostname dnsserverip nslookup -type=txt hostname Type: mx - mail ptr - pointer txt - text

assoc - will tell you which files are associated to which program assoc .mp4=VLC.vlc

cls - clean screen getmac /v

powercfg /energy - /batteryreport chkdsk /f (fix) /r (physical sector issues)
sfc /scannow DISM /Online /Cleanup-image /CheckHealth Basic Deeper - /ScanHealth Deeper - /RestoreHealth Do sfc /scannow afterwards

tasklist | findstr script taskkill /f /pid pid

netsh wlan show wlanreport netsh interface ip show address netsh interface ip show dnsservers netsh advfirewall set allprofiles status off

ping: -t infinite ping

tracert: -d will not resolve host names

netstat: -af -o -e -t 5

route: print add network mask interface add 192.168.4.0 mask 255.255.255.0 192.168.1.10 delete 192.168.4.0

Restart to BIOS shutdown /r /fw /f /t 0