

# z/OS Introduction and Workshop

TN3270, FTP, and SSH Access



# Unit Objectives

After completing this unit, you should be able to:

- Briefly describe 3270
- Access z/OS using TN3270 Emulator
- Access z/OS using SSH
- Access z/OS using FTP

# 3270 Protocol

3270 is an IBM display device introduced in 1971

- Text only display
- Session attributes determine screen number of rows and columns
- Existed long before HTML and Browsers
- VT100 (text display) introduced in 1978

3270 protocol is a 'data stream' consisting of commands and orders to:

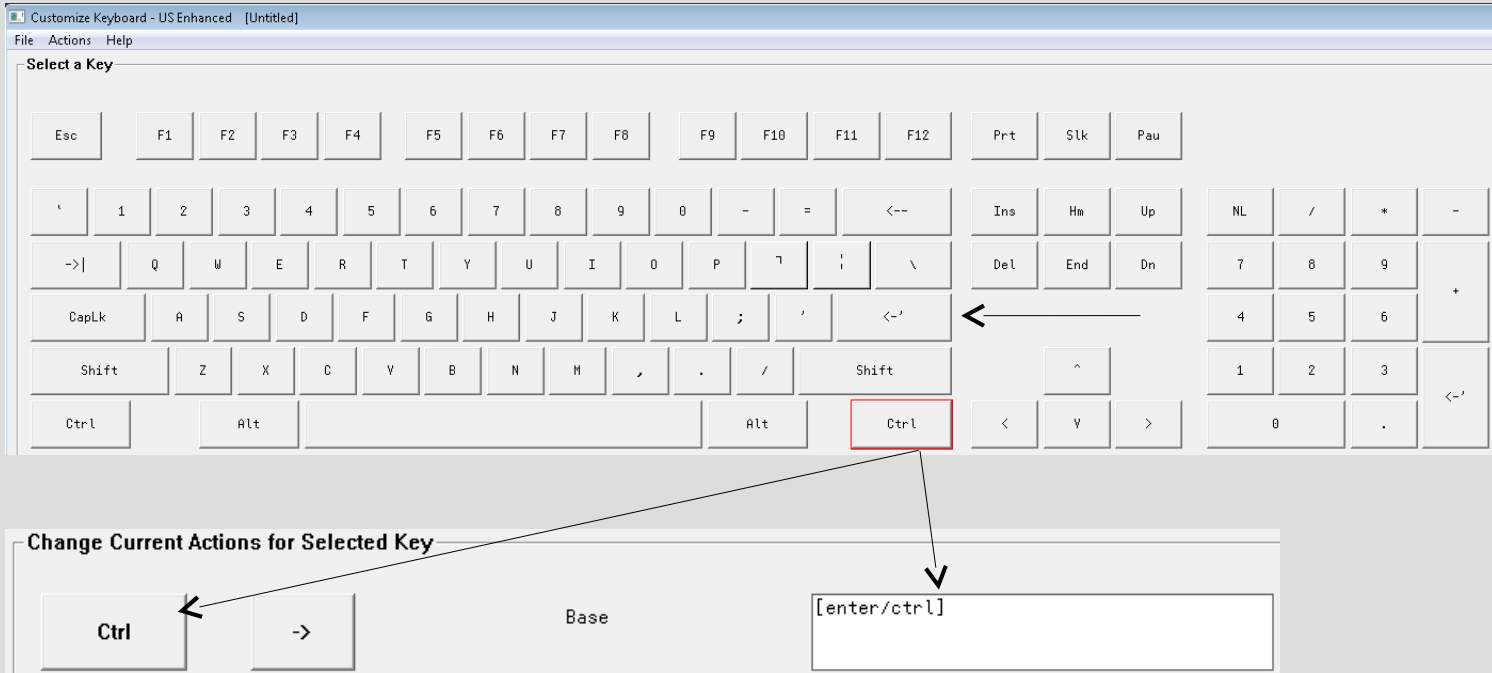
- Write data to display device
- Read data from display device

3270 Emulator Keyboard Mapping vs. PC Keyboard Layout

- 3270 protocol 'enter' command, x'7D', is used to send screen data
- PC keyboard right side '**Ctrl**' is mapped by emulator to generate 'enter' command
- Emulator keyboard mapping can be changed



# Physical Keyboard Layout & 3270 Emulator Mapping



Right side Ctrl key generates 3270 'enter' command by default  
Emulator keyboard mapping can be changed

# TN3270 Configuration

## Customization Options

- IP address (target system) **192.86.32.67**
- Port number (target system application) **23**
- Model size (screen # rows and # columns)
- Code page (**1047** recommended for USA)
- Keyboard Mapping
- Colors

How to configure is dependent upon specific TN3270 emulator

- TN3270 for Windows (many)
- TN3270 for Linux and MAC (x3270)

[http://mtm2019.mybluemix.net/connectivity\\_guide/connectivity\\_guide\\_software.html](http://mtm2019.mybluemix.net/connectivity_guide/connectivity_guide_software.html)

[http://mtm2019.mybluemix.net/connectivity\\_guide/connectivity\\_guide\\_connection.html](http://mtm2019.mybluemix.net/connectivity_guide/connectivity_guide_connection.html)

# TN3270 signon screen following successful configuration

```
x3270-4 192.86.32.67
File Options
Zowe Local IP Address = 47,185,40,3
z/OS Bootcamp Labs

Zowe and Z Boot Camp

      // 0000000 SSSSSSS
     // 00 00 SS
    zzzzzz // 00 00 SS
     zz // 00 00 SSSS
    zz // 00 00 SS
     zz // 00 00 SS
    zzzzzz // 0000000 SSSSSSS

IBM Z, The Next Generation



z/OS Runs the Economy of the World

==> Enter "logon" followed by the TSO userid, Example "logon userid" or
==> Enter TSO

logon z00009  'enter' command – right side Ctrl key
```

*Cursor placed at bottom – ready for keyboard entry*

# Tab to Password field enter zfun New Password required with verification

```
----- TSO/E LOGON -----  
  
Enter LOGON parameters below:                                RACF LOGON parameters:  
Userid    ===> Z00009  
Password  ===>    
Procedure ===> DBPROCCG                                     New Password ===>  
Acct Nubr ===> FB3                                          Group Ident  ===>  
Size      ===> 32768  
Perform   ===>  
Command   ===>  
  
Enter an 'S' before each option desired below:  
-Nomail          -Nonotice           -Reconnect          -OIDcard  
  
PF1/PF13 ==> Help      PF3/PF15 ==> Logoff      PA1 ==> Attention      PA2 ==> Reshow  
You may request specific help information by entering a '?' in any entry field
```


# TSO logon writes message to display device

```
ICH70001I Z00009  LAST ACCESS AT 10:00:17 ON MONDAY, JULY 20, 2020  
Z00009 LOGON IN PROGRESS AT 10:02:25 ON JULY 20, 2020  
NO BROADCAST MESSAGES
```

```
      Central USA Time Zone  
      10:02:29 20 Jul 2020  
You logged on with ID  Z00009  
      Have Fun!
```

```
Data Center Upgrades - System Unavailable  
Sunday July 12 9:30am - 3:30pm CST
```

```
--> Creating new ISPF Profile ==> Z00009,S0W1,ISPF,ISPPROF  
--> ISPF Profile Successfully allocated
```







# TSO automatically starts ISPF

```
Menu Utilities Compilers Options Status Help
-----
                ISPF Primary Option Menu
                More: +
0 Settings      Terminal and user parameters      User ID . . : ZIBM050
1 View          Display source data or listings    Time. . . : 14:01
2 Edit          Create or change source data      Terminal. . : 3278
3 Utilities     Perform utility functions          Screen. . . : 1
4 Foreground   Interactive language processing      Language. . : ENGLISH
5 Batch        Submit job for language processing      Appl ID . . : ISR
6 Command      Enter TSO or Workstation commands          TSO logon : DBPROCBG
7 Dialog Test  Perform dialog testing                          TSO prefix: ZIBM050
8 LM Facility  Library administrator functions                System ID : S0W1
9 IBM Products IBM program development products        MVS acct. : FB3
10 SCLM        SW Configuration Library Manager          Release . . : ISPF 7.2
11 Workplace   ISPF Object/Action Workplace

----- Other Install Products -----

D Debug Tool  Debug Tool Utility V13.1
SD SDSF      System Display and Search Facility
IP IPCS      Inter Problem Control Facility
IS ISMF      Inter Storage Management Facility
SM SMP/E     SMP/E and CBIPO Dialogs
HC HCD       HW Configuration Definition Dialog
R RACF       Resource Access Control Facility
S DFSORT     Data Facility Sort
OE OEDIT     OpenEdition MVS Edit files
OB OBROWSE   OpenEdition MVS Browse files
OS OSHELL    OpenEdition MVS ISPF Shell
BR READ      BookManager READ/MVS
BB BUILD     BookManager BUILD/MVS
BI READ INDEX BookManager Index Utility

Licensed Materials - Property of IBM
5650-Z0S Copyright IBM Corp. 1980, 2015.
US Government Users Restricted Rights -
Use, duplication or disclosure restricted
by GSA ADP Schedule Contract with IBM Corp.

Option ==> =0|
F1=Help      F2=Split    F3=Exit     F7=Backward F8=Forward  F9=Swap
F10=Actions  F12=Cancel
```

*change settings*

ns  
B2  
n

# ISPF Settings

## Before

```
Log/List Function keys Colors Environ Workstation Identifier Help
ISPF Settings

Options
Enter "/" to select option
/ Command line at bottom
/ Panel display CUA mode
/ Long message in pop-up
/ Tab to action bar choices
/ Tab to point-and-shoot fields
/ Restore TEST/TRACE options
/ Session Manager mode
/ Jump from leader dots
/ Edit PRINTDS Command
/ Always show split line
/ Enable EURO sign

Member list options
Enter "/" to select option
/ Scroll member list
- Allow empty member list
- Allow empty member list (nomatch)
/ Empty member list for edit only

Terminal Characteristics
Screen format 2 1. Data 2. Std 3. Max 4. Part

Terminal Type 3 1. 3277 2. 3277A 3. 3278 4. 3278A
5. 3290A 6. 3278T 7. 3278CF 8. 3277KN
9. 3278KN 10. 3278AR 11. 3278CY 12. 3278HN
13. 3278HO 14. 3278IS 15. 3278L2 16. BE163
17. BE190 18. 3278TH 19. 3278CU 20. DEU78
21. DEU78A 22. DEU78T 23. DEU90A 24. SW116
25. SW131 26. SW500 27. 3278GR 28. 3278L1
29. OTHER

Command ====
F1=Help F2=Split F3=Exit F7=Backward F8=Forward F9=Swap
F10=Actions F12=Cancel
```

## After

```
Log/List Function keys Colors Environ Workstation Identifier Help
ISPF Settings

Options
Enter "/" to select option
- Command line at bottom
- Panel display CUA mode
- Long message in pop-up
- Tab to action bar choices
- Tab to point-and-shoot fields
/ Restore TEST/TRACE options
/ Session Manager mode
/ Jump from leader dots
/ Edit PRINTDS Command
/ Always show split line
- Enable EURO sign

Member list options
Enter "/" to select option
/ Scroll member list
- Allow empty member list
- Allow empty member list (nomatch)
/ Empty member list for edit only

Terminal Characteristics
Screen format 3 1. Data 2. Std 3. Max 4. Part

Terminal Type 3 1. 3277 2. 3277A 3. 3278 4. 3278A
5. 3290A 6. 3278T 7. 3278CF 8. 3277KN
9. 3278KN 10. 3278AR 11. 3278CY 12. 3278HN
13. 3278HO 14. 3278IS 15. 3278L2 16. BE163
17. BE190 18. 3278TH 19. 3278CU 20. DEU78
21. DEU78A 22. DEU78T 23. DEU90A 24. SW116
25. SW131 26. SW500 27. 3278GR 28. 3278L1
29. OTHER

Return
Exit
F3

Command ====
F1=Help F2=Split F3=Exit F7=Backward F8=Forward F9=Swap
F10=Actions F12=Cancel
```

# Program Function key display off, 'x' to terminate ISPF session, then logoff of TSO

Before

```
Menu Utilities Compilers Options Status Help
-----
ISPF Primary Option Menu
Option ==> pfshow off; More: +
0 Settings Terminal and user parameters User ID . : ZIBM050
1 View Display source data or listings Time. . . : 14:04
2 Edit Create or change source data Terminal. : 3278
3 Utilities Perform utility functions Screen. . : 1
4 Foreground Interactive language processing Language. : ENGLISH
5 Batch Submit job for language processing Appl ID . : ISR
6 Command Enter TSO or Workstation commands TSO logon : DBPROCBG
7 Dialog Test Perform dialog testing TSO prefix: ZIBM050
8 LM Facility Library administrator functions System ID : S0M1
9 IBM Products IBM program development products MVS acct. : FB3
10 SCLM SM Configuration Library Manager Release . : ISPF 7.2
11 Workplace ISPF Object/Action Workplace

----- Other Install Products -----

D Debug Tool Debug Tool Utility V13.1
SD SDSF System Display and Search Facility
IP IPCS Inter Problem Control Facility
IS ISMF Inter Storage Management Facility
SM SMP/E SMP/E and CBIPO Dialogs
HC HCD HW Configuration Definition Dialog
R RACF Resource Access Control Facility
S DFSORT Data Facility Sort
OE OEDIT OpenEdition MVS Edit files
OB OBROWSE OpenEdition MVS Browse files
OS OSHELL OpenEdition MVS ISPF Shell
BR READ BookManager READ/MVS
BB BUILD BookManager BUILD/MVS
BI READ INDEX BookManager Index Utility
DU MVS/DITTO MVS/DITTO Utility
IN INSPECT INSPECT for C/370 and PL/I
MQ MQSeries MQSeries 8.0.0
D2 DB2I Perform DB2 Interactive functions
DM DB2ADM DB2 Admin Tool
QM QMF Query Management Facility for DB2
CO CICS PD/MVS CICS PD/MVS Online Customization
F1=Help F2=Split F3=Exit F7=Backward F8=Forward F9=Swap
F10=Actions F12=Cancel
```

After

```
Menu Utilities Compilers Options Status Help
-----
ISPF Primary Option Menu
Option ==> =>x; More: +
0 Settings Terminal and user parameters User ID . : ZIBM050
1 View Display source data or listings Time. . . : 14:04
2 Edit Create or change source data Terminal. : 3278
3 Utilities Perform utility functions Screen. . : 1
4 Foreground Interactive language processing Language. : ENGLISH
5 Batch Submit job for language processing Appl ID . : ISR
6 Command Enter TSO or Workstation commands TSO logon : DBPROCBG
7 Dialog Test Perform dialog testing TSO prefix: ZIBM050
8 LM Facility Library administrator functions System ID : S0M1
9 IBM Products IBM program development products MVS acct. : FB3
10 SCLM SM Configuration Library Manager Release . : ISPF 7.2
11 Workplace ISPF Object/Action Workplace

----- Other Install Products -----

D Debug Tool Debug Tool Utility V13.1
SD SDSF System Display and Search Facility
IP IPCS Inter Problem Control Facility
IS ISMF Inter Storage Management Facility
SM SMP/E SMP/E and CBIPO Dialogs
HC HCD HW Configuration Definition Dialog
R RACF Resource Access Control Facility
S DFSORT Data Facility Sort
OE OEDIT OpenEdition MVS Edit files
OB OBROWSE OpenEdition MVS Browse files
OS OSHELL OpenEdition MVS ISPF Shell
BR READ BookManager READ/MVS
BB BUILD BookManager BUILD/MVS
BI READ INDEX BookManager Index Utility
DU MVS/DITTO MVS/DITTO Utility
IN INSPECT INSPECT for C/370 and PL/I
MQ MQSeries MQSeries 8.0.0
D2 DB2I Perform DB2 Interactive functions
DM DB2ADM DB2 Admin Tool
QM QMF Query Management Facility for DB2
CO CICS PD/MVS CICS PD/MVS Online Customization

Enter X to Terminate using log/list defaults

READY
logoff
```



# SSH connection

*enter key is PC labeled enter key*

*use same TN3270 access assigned ID and your password (lowercase)*

```
[paulnewt@oc0600245702 ~]$ ssh z00009@192.86.32.67  
z00009@192.86.32.67's password:  
Z00009:/u/z00009 > exit  
Connection to 192.86.32.67 closed.  
[paulnewt@oc0600245702 ~]$ █
```

# FTP connection

```
[paulnewt@oc0600245702 ~]$ ftp 192.86.32.67
Connected to 192.86.32.67 (192.86.32.67).
220-FTPSERVE IBM FTP CS V2R3 at S0W1.DAL-EBIS.IHOST.COM, 15:14:27 on 2020-07-20.
220 Connection will close if idle for more than 5 minutes.
Name (192.86.32.67:paulnewt): z00009
331 Send password please.
Password:
230 Z00009 is logged on. Working directory is "Z00009.".
Remote system type is MVS.
ftp> quit
221 Quit command received. Goodbye.
[paulnewt@oc0600245702 ~]$ █
```

*enter key is PC labeled enter key*

*use same TN3270 access assigned ID and your password*

# Unit Summary

Having completed this unit, you should be able to:

- Having completed this unit, you should be able to:
- Briefly describe 3270
- Access z/OS using TN3270 Emulator
- Access z/OS using SSH
- Access z/OS using FTP

IBM