

# ISPF – Workstation Agent (WSA)

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4:30 PM - 5:30 PM  
16665*

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# Introduction

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- One of ISPF's 'best kept secrets' is the Workstation Agent (WSA)
- It is FREE and comes with the z/OS operating system
  - WSA is a Client/Server component of ISPF
  - No mainframe setup or installation required
- Executes ISPF on the PC and maintains a connection to the mainframe
- WSA provides the ability to
  - Display ISPF in GUI display
  - Allows distributed editing
    - Edit mainframe files on the PC and edit PC files from the mainframe
  - Capability to transfer files
    - Both in foreground and batch

# Overview

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- IBM introduced the Workstation Agent in ISPF V4 in 1994, MVS/ESA
- When WSA was released, it had numerous bugs
  - But over time, IBM has resolved and enhanced the product
- Customers finding WSA useful tend to
  - Have a lot of screen real-estate, several monitors connected to their PC
  - Prefer to use one editor to modify and view mainframe and PC files
  - Consistently download and upload files from their workstation

# Requirements

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- Must have one of the following environments:
  - A TCP/IP connection between the mainframe and a workstation executing one of the following operating systems:
    - Microsoft Windows
    - AIX
    - HP-UX
    - Solaris (SUN)
  - An APPC connection between the mainframe and a workstation running Microsoft Windows

# Agenda

Topics
<a href="#"><u>Install WSA</u></a>
<a href="#"><u>Workstation IP Address</u></a>
<a href="#"><u>WSA with GUI</u></a>
<a href="#"><u>WSA without GUI</u></a>
<a href="#"><u>WSA without GUI – Edit a PC File</u></a>
<a href="#"><u>WSA without GUI – Use Notepad to Edit a Mainframe and PC File</u></a>
<a href="#"><u>WSA without GUI – Transfer Files using ISPF 3.7.2</u></a>
<a href="#"><u>WSA – Transfer Files using REXX</u></a>
<a href="#"><u>WSA – Compatibility Issues</u></a>
<a href="#"><u>Links</u></a>

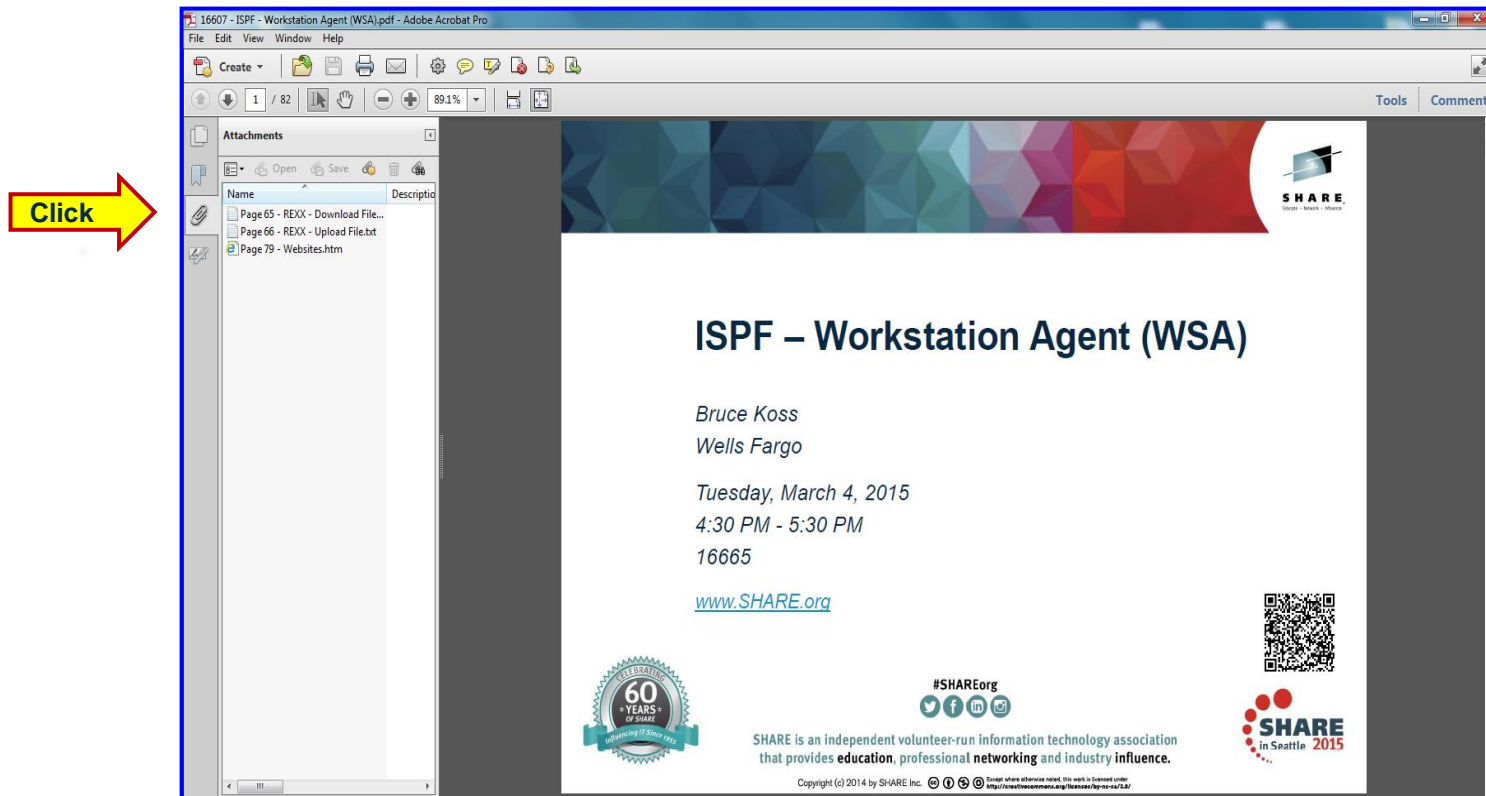
# Attachments ( )

- The following attachments are included in this document:

File	Type
Page 68 – REXX – Download File	TXT
Page 69 – REXX – Upload File	TXT
Page 82 – Websites	HTM


# Attachments (📎)

- Invoke Adobe Reader and click the 'Attachments' button on the left side of the navigational panel of the main Reader window



# Disclaimers

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- Must use Adobe Reader to view attachments
  - (  ) signifies attachment
- May need to adjust the Adobe Reader zoom value to view text
- The term workstation is used loosely to refer to a Personal Computer (PC), a laptop or a UNIX platform
- Only covers ISPF Workstation Agent (WSA) on
  - Windows operating system, not AIX, HP-UX or Solaris (Sun)
  - And connecting with TCPIP, not APPC
- Does not demonstrate how to transfer the WSA client module
  - Because there are numerous ways to download files to the workstation



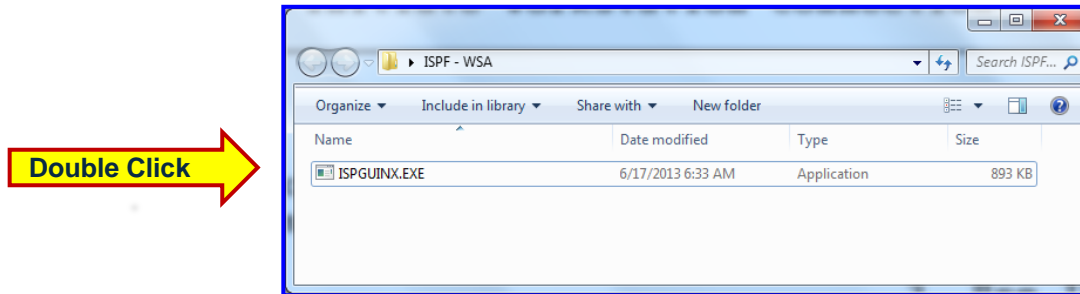
# Installing Workstation Agent

# Download

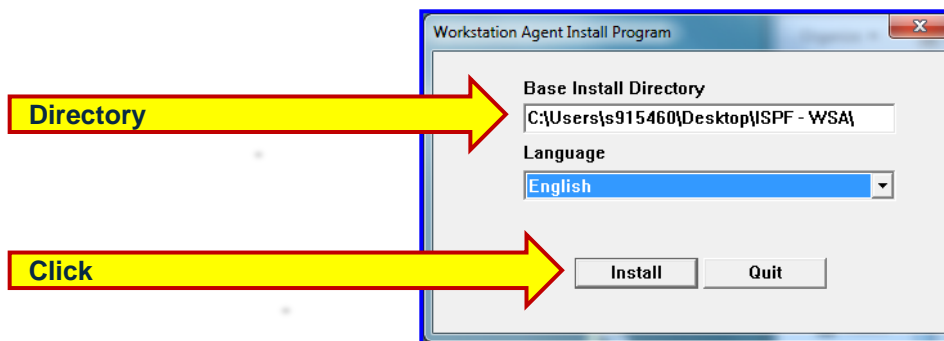
- Download (binary) the ISPF Client/Server component from a MVS data set to a folder on the workstation
  - Mainframe
    - Data set: **SYS1.SISPGUI** (or **ISP.SISPGUI**)
    - Member: **ISPGUINX**
  - PC
    - File name: **ISPGUINX.EXE**
- Accomplished using
  - 3270 emulator file transfer
    - Attachmate, Hummingbird, Passport, Rumba, etc.
  - IP Switch WS\_FTP Professional Client for Windows (or generic FTP)

# Install

- Double click on the **ISPGUINX.EXE** file

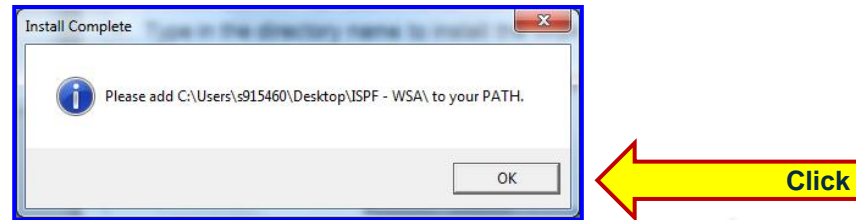


- Type in the directory name to install the WSA in the 'Base Install Directory' field and click the **Install** button

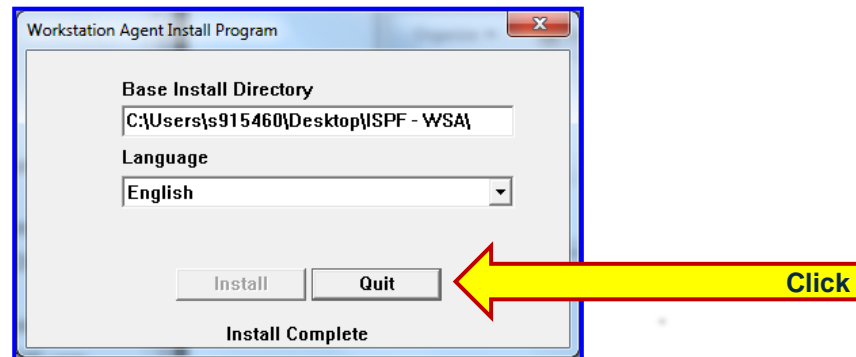


# Install

- Click the **OK** button and disregard the message

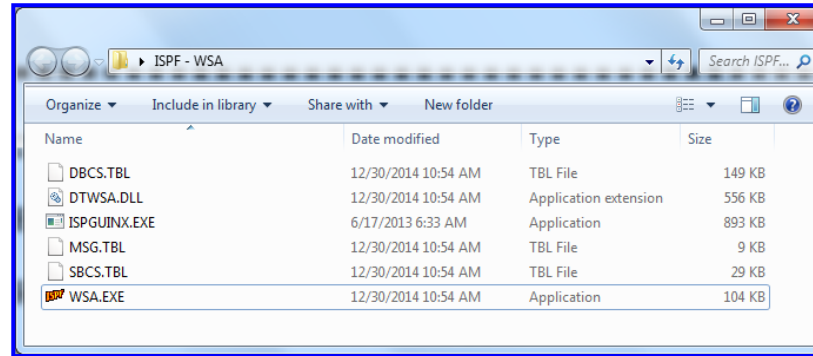


- Click the **QUIT** button

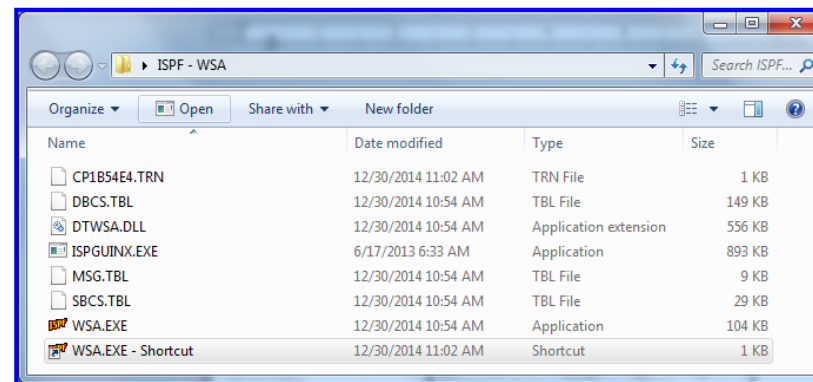


# Create shortcut

- Right click the **WSA.EXE** module and click **Create a Shortcut**

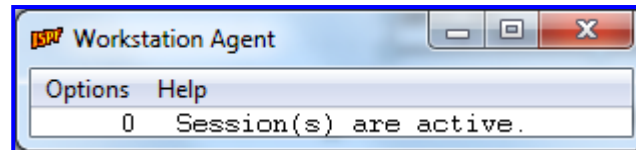


- Then, drag the Shortcut to your desktop



# Invoke

- Double click on the **WSA.EXE** shortcut
- The Workstation Agent is now successfully installed and active



# Workstation IP Address

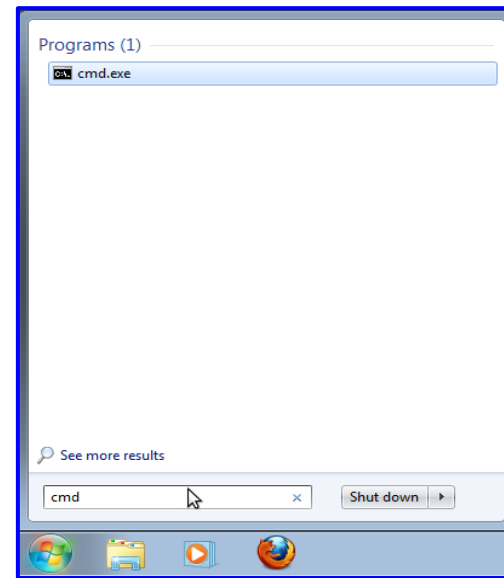
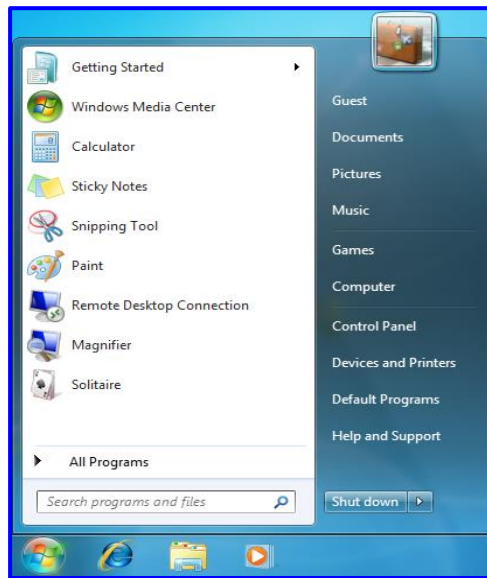
# Overview

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- The next few slides will demonstrate how to obtain the workstation's IP address



- Obtain the workstation's IP address
  - Open a DOS command window
    - From the Microsoft task bar, click on the Windows ICON
    - The Start Menu will appear
    - Type in **CMD** in the 'Search programs and files' field



- From the DOS window, type in **IPCONFIG**
  - Write down the 'IPv4 Address' located under the 'Ethernet adapter Local Area Connection' section and close the DOS window

```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\s915460> IPCONFIG
Windows IP Configuration

Ethernet adapter Local Area Connection* 11:

    Connection-specific DNS Suffix  . : ent.wfb.bank.corp
    IPv4 Address. . . . . : 182.66.20.190
    Subnet Mask . . . . . : 255.255.255.255
    Default Gateway . . . . . : 0.0.0.0

Mobile Broadband adapter Mobile Broadband Connection:

    Connection-specific DNS Suffix  . :
    IPv4 Address. . . . . : 182.200.30.1
    Subnet Mask . . . . . : 255.255.255.252
    Default Gateway . . . . . :

Ethernet adapter Bluetooth Network Connection:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Wireless Network Connection:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : launchmodem.com

Ethernet adapter Local Area Connection:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

C:\Users\s915460>
```

# Workstation Agent with GUI Display

# Overview

---

- The next few slides will demonstrate how to connect the workstation to the mainframe in GUI display
- Note
  - Must have the Workstation Agent active and the workstation's IP address

- From a TSO/ISPF session, type in **WSCON**

```
Menu Utilities Compilers Options Status Help
-----
                                ISPF Primary Option Menu
Option ==> WSCON
                                More:      +
0 Settings      Terminal and user parameters      User ID . : R2221
1 View          Display source data or listings      Time. . . : 16:26
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 : IKJTSO01
7 Dialog Test   Perform dialog testing      TSO prefix: R2221
10 SCLM         SW Configuration Library Manager      System ID : SDV21
11 Workplace   ISPF Object/Action Workplace      MVS acct. : TSOPRD
D Developer     Developers Workbench      Release . : ISPF 6.3
E Ezyedit      ISPF Productivity Facility
S System       System Support Software
SD SDSF        System Display and Search Facility
U1 User1       Personal or Team Software (1)
U2 User2       Personal or Team Software (2)

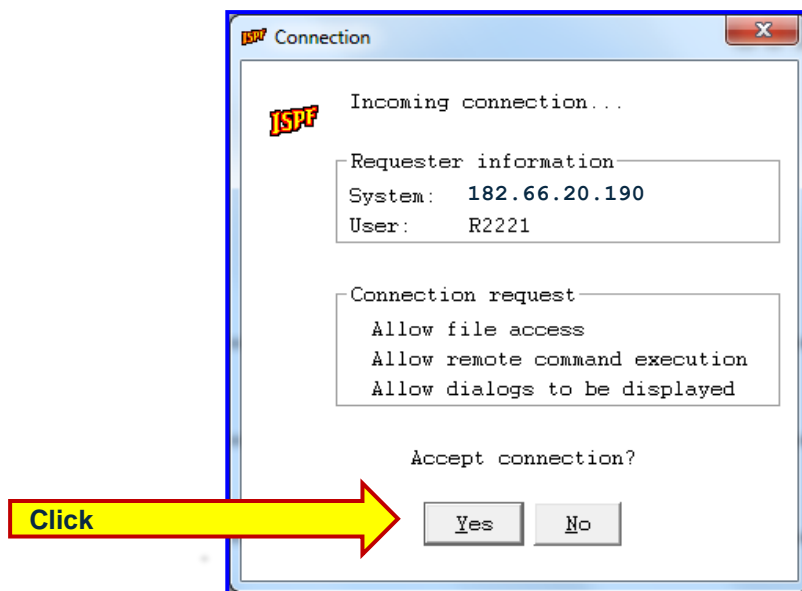
Enter X to Terminate or Z to Terminate/Logoff
```

- Type in **1** in the ‘**Workstation Connection**’ field and the IP address in the ‘**TCP/IP Address**’ field and press **ENTER**

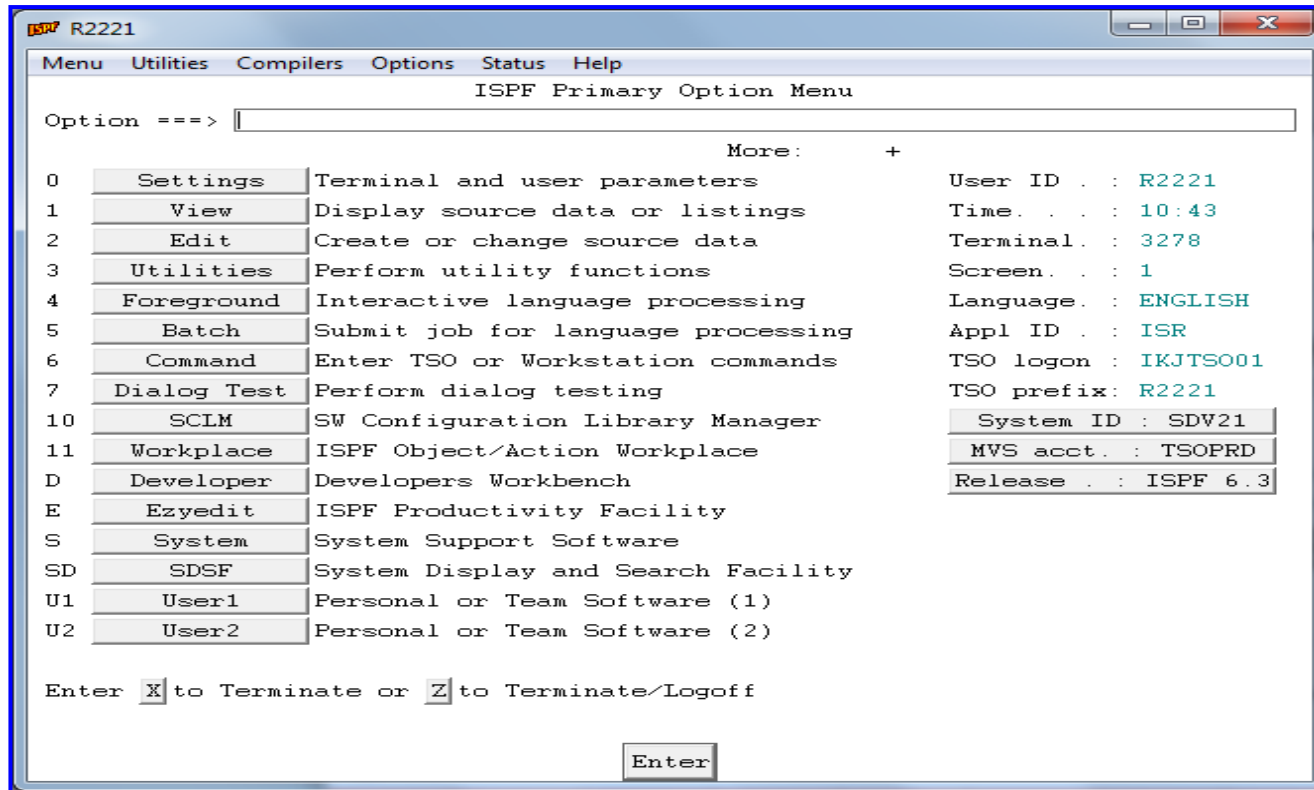
```
+-----+
- |                                     Initiate Workstation Connection                                     | --
- | Command ==> _____ |
O |                                     More: + |
- | / Save values in system profile? (/=Yes) |
O |                                     |
1 | Workstation Connection | GUI Network Protocol |
2 | 1. With GUI display | 1. TCP/IP |
3 | 2. Without GUI display | 2. APPC |
4 | | 3. Use ISPDTPRF file |
5 | | |
6 | GUI Title | | 1 |
7 | _____ |
1 | TCP/IP Address | |
1 | 182.66.20.190 | |
D | APPC Address | | 3 |
E | _____ |
S | |
S | |
U | Host Codepage . . . ____ | Host Character Set . . . ____ |
U | |
E | GUI Window Frame | Default Window Background Color |
E | 1 1. Standard (STD) | 1 1. Dialog (DLG) |
+-----+
```

# Connection

- Somewhere on the workstation the pop-up window below will appear
- Click the **Yes** button to activate the connection



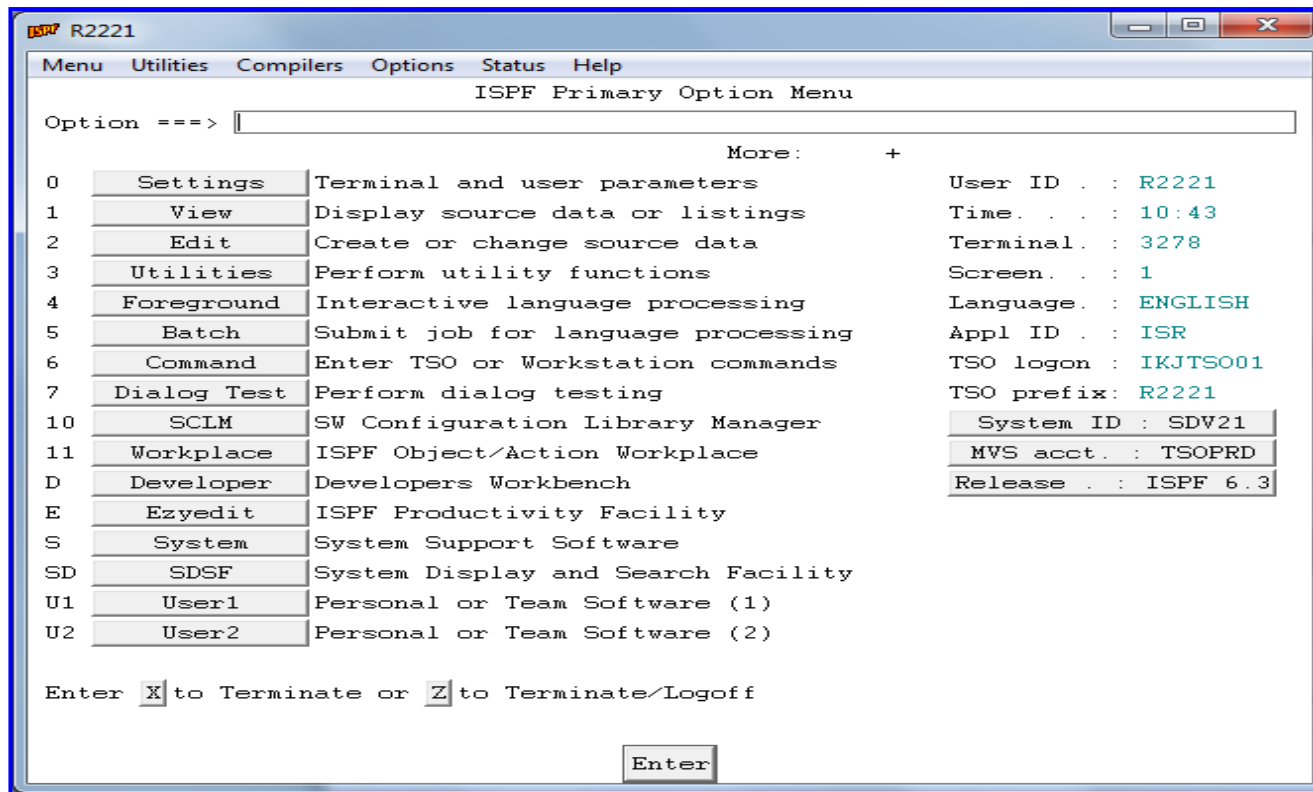
- An ISPF GUI screen should appear





# Terminate

- To terminate the GUI display and disconnect from the WSA, click the **X** in the upper right hand corner of the window or press **F3 (END)**



# Terminate – Results

- From the TSO Ready screen, type in **ISPF** to re-invoke ISPF



- ISPF will be invoked and not be connected to the WSA

```
Menu Utilities Compilers Options Status Help
-----
                                ISPF Primary Option Menu
Option ==> _____
                                More:      +
0 Settings      Terminal and user parameters      User ID . : R2221
1 View          Display source data or listings    Time. . . : 16:26
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 : IKJTSO01
7 Dialog Test   Perform dialog testing                      TSO prefix: R2221
10 SCLM         SW Configuration Library Manager           System ID : SDV21
11 Workplace    ISPF Object/Action Workplace              MVS acct. : TSOPRD
D Developer     Developers Workbench                       Release . : ISPF 6.3
E Ezyedit       ISPF Productivity Facility
S System        System Support Software
SD SDSF         System Display and Search Facility
U1 User1        Personal or Team Software (1)
U2 User2        Personal or Team Software (2)

Enter X to Terminate or Z to Terminate/Logoff
```

- 32 separate/individual GUI split screens per TSO session
- Point-n-shoot fields are displayed as buttons, making it easier to
  - Identify and see
  - Navigate and use the mouse
- Commands

Command	Description
SPLIT and START	Create new GUI screens
SWITCH [3270   GUI]	Switch between displays
WSDISCON	Terminates the WSA

# Cons

- The Workstation Agent must be active
- Can not initiate the GUI display while in split screen mode
- Screens are black and white, not colored, and commands like **FIND/CHANGE** do not highlight or underline the text string
  - Character-level color, intensity and highlighting are not supported
  - Field-level intensity and highlighting are not supported
- Maximum fixed window size, can not enlarge to full screen mode
  - Must change the Workstation Agent font size to enlarge the window
  - Window can be resized smaller, but hides the screen
- The '**Workstation File Name**' field is not **EXPAND**able on ISPF screens
  - Prevents typing in large directory and file names

# Workstation Agent without GUI Display

# Overview

---

- The next few slides will demonstrate how to connect the workstation to the mainframe in Non-GUI display
- Note
  - Must have the Workstation Agent active and the workstation's IP address

- From a TSO/ISPF session, type in **WSCON**

```
Menu Utilities Compilers Options Status Help
-----
                                ISPF Primary Option Menu
Option ==> WSCON
                                More:      +
0 Settings      Terminal and user parameters      User ID . : R2221
1 View          Display source data or listings        Time. . . : 16:26
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 : IKJTSO01
7 Dialog Test  Perform dialog testing                    TSO prefix: R2221
10 SCLM        SW Configuration Library Manager          System ID : SDV21
11 Workplace   ISPF Object/Action Workplace              MVS acct. : TSOPRD
D Developer    Developers Workbench                       Release . : ISPF 6.3
E Ezyedit      ISPF Productivity Facility
S System       System Support Software
SD SDSF        System Display and Search Facility
U1 User1       Personal or Team Software (1)
U2 User2       Personal or Team Software (2)

Enter X to Terminate or Z to Terminate/Logoff
```

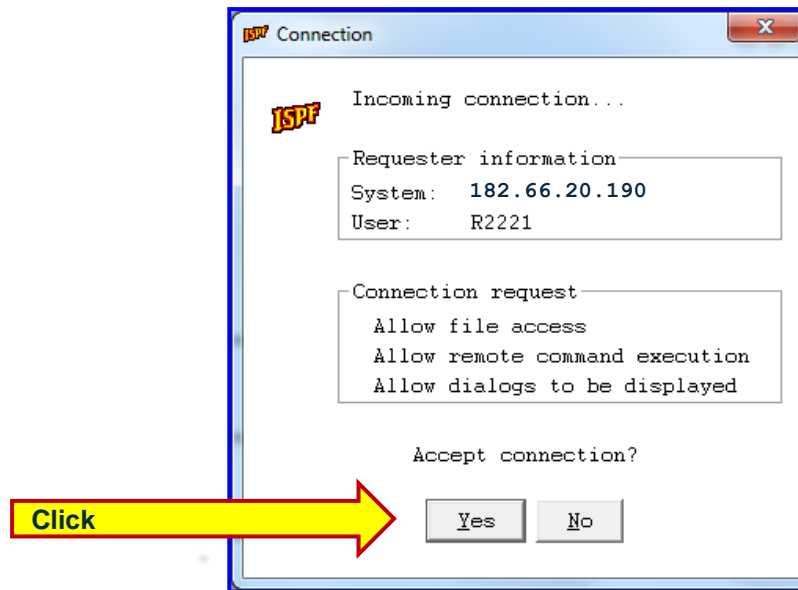


- Type in **2** in the ‘**Workstation Connection**’ field and the IP address in the ‘**TCP/IP Address**’ field and press **ENTER**

```
+-----+
- |                               Initiate Workstation Connection                               | --
O | Command ==> _____ More: +
  | / Save values in system profile? (/=Yes)
0 |
1 | Workstation Connection                                GUI Network Protocol
2 | 2 1. With GUI display                               1 1. TCP/IP
3 |   2. Without GUI display                             2. APPC
4 |                                                       3. Use ISPDTPRF file
5 |
6 | GUI Title                                           1
7 | _____
1 | TCP/IP Address
1 | 182.66.20.190                                     |
D | APPC Address                                         3
E | _____
S |
S |
U | Host Codepage . . . _____ Host Character Set . . . _____
U |
E | GUI Window Frame                                    Default Window Background Color
  | 1 1. Standard (STD)                                1 1. Dialog (DLG)
+-----+
```

# Connection

- Somewhere on the workstation the pop-up window below will appear
- Click the **Yes** button to activate the connection



- Can now edit PC files using ISPF or edit mainframe files using a workstation editor

```
Menu Utilities Compilers Options Status Help
-----
Option ==> ISPF Primary Option Menu Connected
-----
                                More:      +
0 Settings      Terminal and user parameters      User ID . : R2221
1 View          Display source data or listings          Time. . . : 16:46
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 : IKJTSO01
7 Dialog Test  Perform dialog testing                  TSO prefix: R2221
10 SCLM        SW Configuration Library Manager        System ID : SDV21
11 Workplace   ISPF Object/Action Workplace            MVS acct. : TSOPRD
D Developer    Developers Workbench                     Release . : ISPF 6.3
E Ezyedit      ISPF Productivity Facility
S System       System Support Software
SD SDSF        System Display and Search Facility
U1 User1      Personal or Team Software (1)
-----
A connection has been successfully made to the workstation (IP:182.66.20.190)
-----
```

- Type in **WSDISCON** to disconnect the Workstation Agent

```
Menu Utilities Compilers Options Status Help
-----
ISPFS Primary Option Menu
Option ==> WSDISCON
More:      +
0 Settings Terminal and user parameters      User ID . : R2221
1 View     Display source data or listings          Time. . . : 16:50
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 : IKJTSO01
7 Dialog Test Perform dialog testing                TSO prefix: R2221
10 SCLM    SW Configuration Library Manager          System ID : SDV21
11 Workplace ISPF Object/Action Workplace              MVS acct. : TSOPRD
D Developer Developers Workbench                Release . : ISPF 6.3
E Ezyedit  ISPF Productivity Facility
S System   System Support Software
SD SDSF    System Display and Search Facility
U1 User1   Personal or Team Software (1)
U2 User2   Personal or Team Software (2)

Enter X to Terminate or Z to Terminate/Logoff
```

# WSDISCON – Results

- Results from WSDISCON:

```
Menu Utilities Compilers Options Status Help
-----
Option ==> ISPF Primary Option Menu Disconnected
-----
                                More:      +
0 Settings      Terminal and user parameters   User ID . : R2221
1 View          Display source data or listings      Time. . . : 16:50
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 : IKJTSO01
7 Dialog Test  Perform dialog testing                TSO prefix: R2221
10 SCLM        SW Configuration Library Manager      System ID : SDV21
11 Workplace   ISPF Object/Action Workplace          MVS acct. : TSOPRD
D Developer    Developers Workbench                  Release . : ISPF 6.3
E Ezyedit      ISPF Productivity Facility
S System       System Support Software
SD SDSF        System Display and Search Facility
U1 User1      Personal or Team Software (1)
U2 User +-----+
| You have successfully disconnected from the workstation. |
Enter X +-----+
```

# WSA Non-GUI Use ISPF to Edit a PC File

# Overview

---

- The next few slides demonstrate how to edit a PC file using the ISPF editor while connected to the Workstation Agent in Non-GUI display
- Note
  - Must have the Workstation Agent active and connected
    - Accomplished using GUI or Non-GUI display

# Edit (=2)

- Type in =2 for 'Edit'

```
Menu Utilities Compilers Options Status Help
-----
                                ISPF Primary Option Menu
Option ==> =2
-----
                                More:      +
0  Settings      Terminal and user parameters      User ID . : R2221
1  View          Display source data or listings      Time. . . : 17:05
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 : IKJTSO01
7  Dialog Test  Perform dialog testing               TSO prefix: R2221
10 SCLM         SW Configuration Library Manager     System ID : SDV21
11 Workplace   ISPF Object/Action Workplace        MVS acct. : TSOPRD
D  Developer    Developers Workbench                 Release . : ISPF 6.3
E  Ezyedit      ISPF Productivity Facility
S  System       System Support Software
SD SDSF        System Display and Search Facility
U1 User1       Personal or Team Software (1)
U2 User2       Personal or Team Software (2)

Enter X to Terminate or Z to Terminate/Logoff
```



# Workstation File

- Type in the workstation drive, directory and file name to edit in the 'Workstation File Name' field

```
Menu  RefList  RefMode  Utilities  Workstation  Help
-----
                                Edit Entry Panel

Command ==> _____

ISPF Library:
  Project . . . _____
  Group   . . . _____ . . . _____ . . . _____
  Type    . . . _____
  Member  . . . _____      (Blank or pattern for member selection list)

Other Partitioned, Sequential or VSAM Data Set, or z/OS UNIX file:
  Name . . . . . _____ +
  Volume Serial . . _____ (If not cataloged)

Workstation File:
  File Name . . C:\test0\README.txt

Options
Initial Macro . . . _____ - Confirm Cancel/Move/Replace
Profile Name . . . _____ - Mixed Mode
Format Name . . . _____ - Edit on Workstation
Data Set Password . . _____ - Preserve VB record length
Record Length . . . _____ - Edit ASCII data
Line Command Table . . _____
```

# Editing PC File

- ISPF is editing the workstation file

```
File Edit Edit_Settings Menu Utilities Compilers Test Help
-----
EDIT C:\test0\README.txt Columns 0001 0072
Command ==> Scroll ==> CSR_
***** Top of Data *****
000001          README
000002
000003          Java(TM) 2 SDK, Standard Edition
000004          README
000005
000006          Version 1.4.2
000007
000008          For a more extensive HTML version of this file, see README.html.
000009
000010 Contents
000011
000012          * Introduction
000013          * System Requirements & Installation
000014          * Release Notes
000015          * Bug Reports and Feedback
000016          * Java 2 SDK Documentation
000017          * Redistribution
000018          * Web Pages
000019
```

# WSA Non-GUI Use Notepad to Edit a Mainframe and PC File

# Overview

---

- The next few slides demonstrate how to configure and setup the editor to use Notepad to edit mainframe and PC files while connected to the Workstation Agent in Non-GUI display
- Note
  - Must have the Workstation Agent active and connected
    - Accomplished using GUI or Non-GUI display

- Type in **INT** for 'Workstation Tool Integration Configuration'

```
Menu Utilities Compilers Options Status Help
-----
Option ==> INT
ISPFS Primary Option Menu
More: +
0 Settings Terminal and user parameters User ID . : R2221
1 View Display source data or listings Time. . . : 05:50
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 : IKJTSO01
7 Dialog Test Perform dialog testing TSO prefix: R2221
10 SCLM SW Configuration Library Manager System ID : SDV21
11 Workplace ISPF Object/Action Workplace MVS acct. : TSOPRD
D Developer Developers Workbench Release . : ISPF 6.3
E Ezyedit ISPF Productivity Facility
S System System Support Software
SD SDSF System Display and Search Facility
U1 User1 Personal or Team Software (1)
U2 User2 Personal or Team Software (2)

Enter X to Terminate or Z to Terminate/Logoff
```

- Type in **E** next to 'Edit' and press **ENTER**

```
Menu Utilities Compilers Options Status Help
+-----+
| File Map Help |
+-----+
| Workstation Tool Integration Configuration |
| Command ==> _____ Scroll ==> CSR |
|
| Press EXIT to save tool configuration to connected workstation hard drive. |
| Press CANCEL to temporarily update tool configuration for this session. |
|
| Action: E=Edit V=View |
|
| Description Code Data Mode Command |
| View V TEXT MODELESS e |
| E Edit E TEXT MODELESS e |
| **End** |
+-----+
| U2 User2 Personal or Team Software (2) |
|
| Enter X to Terminate or Z to Terminate/Logoff |
```

# Edit – Notepad

- Type in **Notepad** in the ‘**Workstation command**’ field and press **F3 (END)**

```
-----+-----
                Modify Tool Configuration
-----+-----

Description . : Edit      Code . : E

Options
Data . . 1  1. Text      Invocation  2  1. Modal
           2. Binary           2. Modeless

Workstation command
Notepad
-----

Additional parameters
-----

Working directory
-----

Update                Cancel
-----+-----
```

# F3 (END)

- Press **F3 (END)**

```
Menu Utilities Compilers Options Status Help
+-----+
| File Map Help |
+-----+
| Workstation Tool Integration Configuration |
| Command ==> _____ Scroll ==> CSR |
| Press EXIT to save tool configuration to connected workstation hard drive. |
| Press CANCEL to temporarily update tool configuration for this session. |
| Action: E=Edit V=View |
| |
| Description Code Data Mode Command |
| - View V TEXT MODELESS e |
| - Edit E TEXT MODELESS Notepad |
| **End** |
+-----+
| U2 User2 Personal or Team Software (2) |
| Enter X to Terminate or Z to Terminate/Logoff |
```



# Edit (=2)

- Type in =2 for 'Edit'

```
Menu Utilities Compilers Options Status Help
-----
                                ISPF Primary Option Menu
Option ==> =2
-----
                                More:      +
0  Settings      Terminal and user parameters      User ID . : R2221
1  View          Display source data or listings    Time. . . : 17:05
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 : IKJTSO01
7  Dialog Test  Perform dialog testing           TSO prefix: R2221
10 SCLM         SW Configuration Library Manager  System ID : SDV21
11 Workplace   ISPF Object/Action Workplace     MVS acct. : TSOPRD
D  Developer    Developers Workbench             Release . : ISPF 6.3
E  Ezyedit      ISPF Productivity Facility
S  System       System Support Software
SD SDSF        System Display and Search Facility
U1 User1       Personal or Team Software (1)
U2 User2       Personal or Team Software (2)

Enter X to Terminate or Z to Terminate/Logoff
```

# Edit on Workstation

- Type in the mainframe data set name and insert a / next to the 'Edit on Workstation' field

```
Menu  RefList  RefMode  Utilities  Workstation  Help
-----
                                Edit Entry Panel

Command ==> _____

ISPF Library:
  Project . . . _____
  Group   . . . _____ . . . _____ . . . _____
  Type    . . . _____
  Member  . . . _____ (Blank or pattern for member selection list)

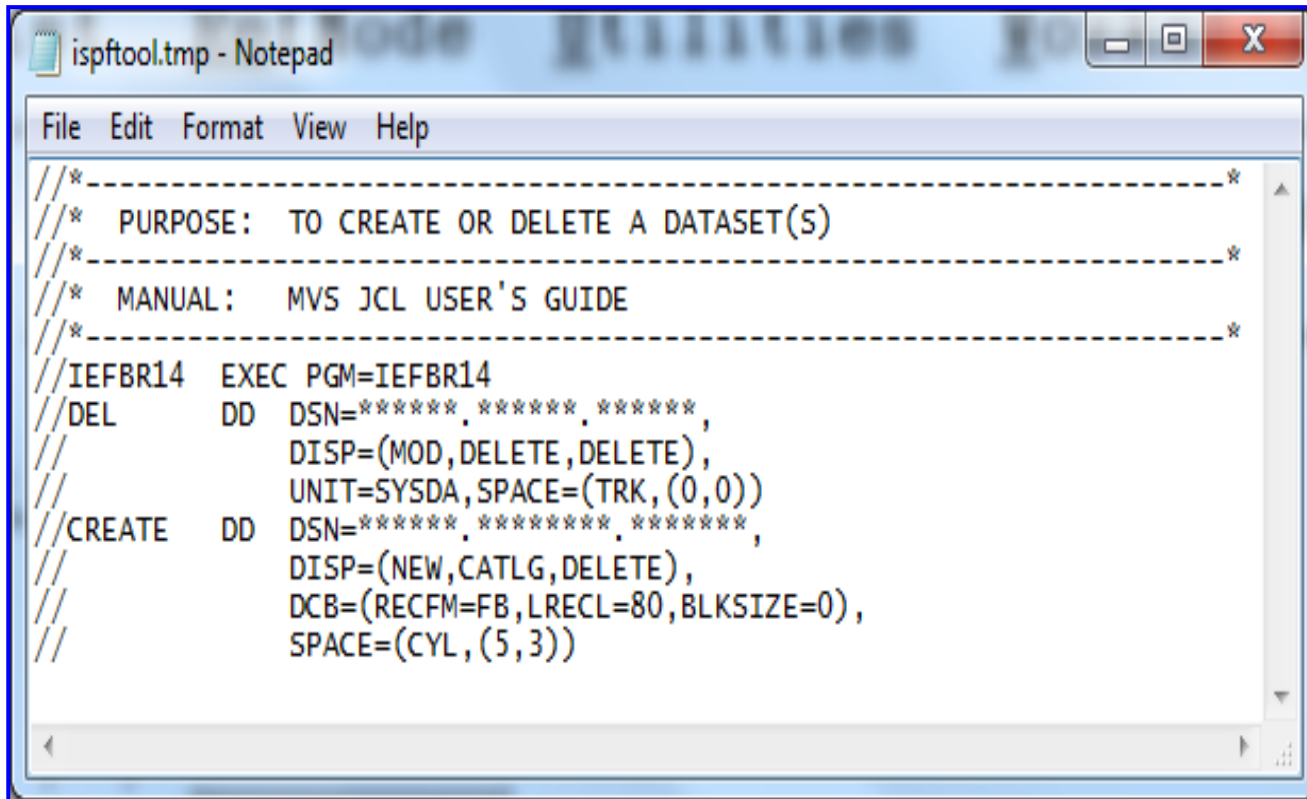
Other Partitioned, Sequential or VSAM Data Set, or z/OS UNIX file:
  Name . . . . . 'PRDSS.R2221.JCL.CNTL(TEST01)' _____ +
  Volume Serial . . _____ (If not cataloged)

Workstation File:
  File Name . . _____

Options
Initial Macro . . . _____ - Confirm Cancel/Move/Replace
Profile Name . . . _____ - Mixed Mode
Format Name . . . _____ / Edit on Workstation
Data Set Password . . _____ - Preserve VB record length
Record Length . . . _____ - Edit ASCII data
Line Command Table . . _____
```

# Notepad Editing Mainframe File

- Notepad is editing the mainframe file. To close the window, click the X in the upper right hand corner



The screenshot shows a Notepad window titled 'ispftool.tmp - Notepad'. The window contains the following text:

```
File Edit Format View Help
// *-----*
// * PURPOSE: TO CREATE OR DELETE A DATASET(S)
// *-----*
// * MANUAL: MVS JCL USER'S GUIDE
// *-----*
//IEFBR14 EXEC PGM=IEFBR14
//DEL DD DSN=*****.*****.*****
// DISP=(MOD,DELETE,DELETE),
// UNIT=SYSDA,SPACE=(TRK,(0,0))
//CREATE DD DSN=*****.*****.*****
// DISP=(NEW,CATLG,DELETE),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=0),
// SPACE=(CYL,(5,3))
```



# Edit PC File

- Type in the workstation file name and insert a / next to the 'Edit on Workstation' field

```
Menu  RefList  RefMode  Utilities  Workstation  Help
-----
                                Edit Entry Panel

Command ==> _____

ISPF Library:
  Project . . . _____
  Group   . . . _____ . . . _____ . . . _____
  Type    . . . _____
  Member  . . . _____      (Blank or pattern for member selection list)

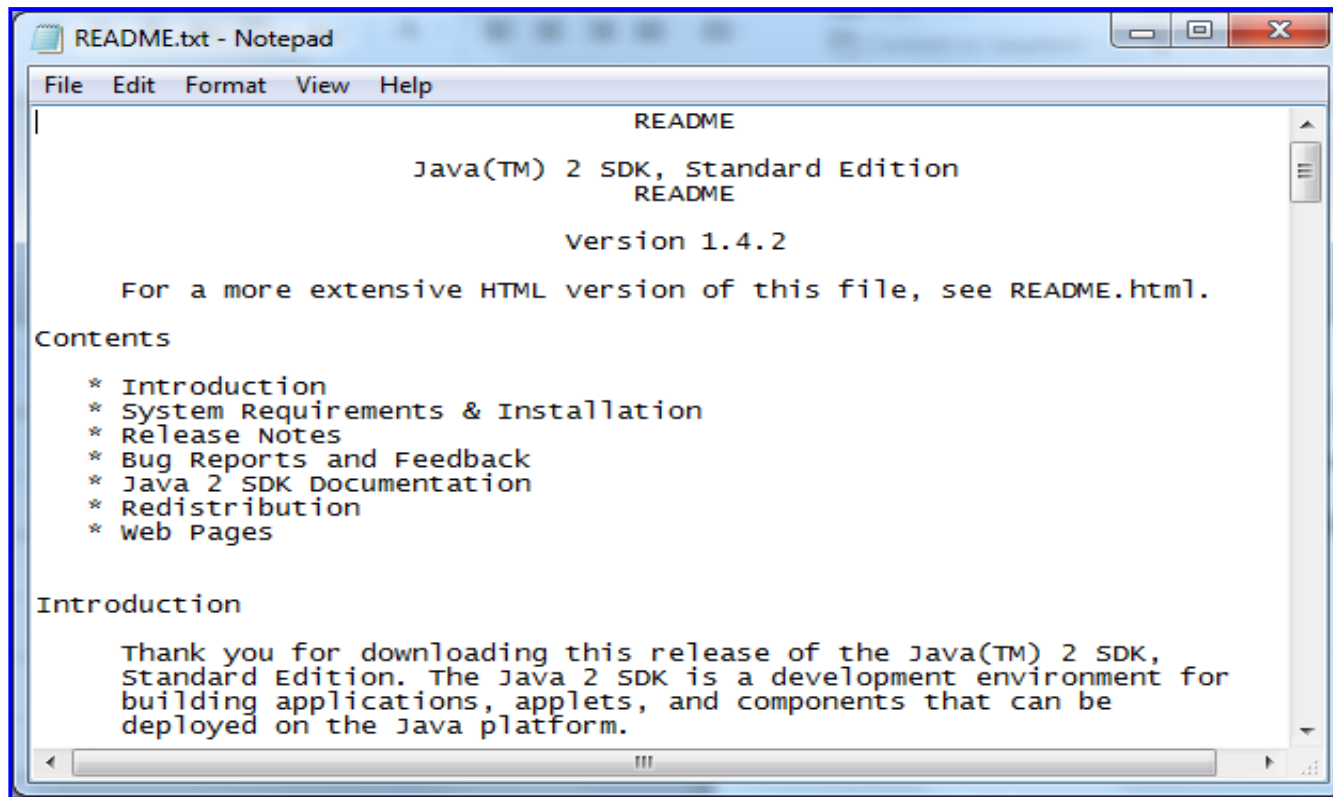
Other Partitioned, Sequential or VSAM Data Set, or z/OS UNIX file:
  Name . . . . . _____ +
  Volume Serial . . _____ (If not cataloged)

Workstation File:
  File Name . . C:\test0\README.txt

Options
Initial Macro . . . . . _____ - Confirm Cancel/Move/Replace
Profile Name . . . . . _____ - Mixed Mode
Format Name . . . . . _____ / Edit on Workstation
Data Set Password . . _____ - Preserve VB record length
Record Length . . . . . _____ - Edit ASCII data
Line Command Table . . _____
```

# Editing PC File

- Notepad is editing the workstation file. To close the window, click the **X** in the upper right hand corner



- Type in **WSDISCON** to disconnect the Workstation Agent

```
Menu  RefList  RefMode  Utilities  Workstation  Help
-----
                                Edit Entry Panel
Command ==> WSDISCON
-----
ISPF Library:
  Project . . . _____
  Group   . . . _____ . . . _____ . . . _____
  Type    . . . _____
  Member  . . . _____      (Blank or pattern for member selection list)

Other Partitioned, Sequential or VSAM Data Set, or z/OS UNIX file:
  Name . . . . . _____ +
  Volume Serial . . _____ (If not cataloged)

Workstation File:
  File Name . . _____

Options
Initial Macro . . . _____ - Confirm Cancel/Move/Replace
Profile Name . . . _____ - Mixed Mode
Format Name . . . _____ / Edit on Workstation
Data Set Password . . _____ - Preserve VB record length
Record Length . . . _____ - Edit ASCII data
Line Command Table . . _____
```

# Common Issue

- After issuing **WSDISCON**, make sure to remove the / next to the 'Edit on Workstation' field or edit will not work

```
Menu  RefList  RefMode  Utilities  Workstation  Help
-----
                                Edit Entry Panel

Command ==> _____

ISPF Library:
  Project . . . _____
  Group   . . . _____ . . . _____ . . . _____
  Type    . . . _____
  Member  . . . _____ (Blank or pattern for member selection list)

Other Partitioned Sequential or VSAM Data Set, or z/OS UNIX file:
  Name . . . . . 'PRDSS.R2221.JCL.CNTL(TEST01)' +
  Volume Serial . . _____ (If not cataloged)

Workstation File:
  File Name . . _____

Options
Initial Macro . . . _____ - Confirm Cancel/Move/Replace
Profile Name . . . _____ - Mixed Mode
Format Name . . . _____  / Edit on Workstation
Data Set Password . . _____ - Preserve VB record length
Record Length . . . _____ - Edit ASCII data
Line Command Table . . _____
```

# Common Issue – Results

- Unable to edit the file due to a / next to the 'Edit on Workstation' field

```
Menu  RefList  RefMode  Utilities  Workstation  Help
-----
                                Edit Entry Panel                                No connection
Command ==> _____

ISPF Library:
  Project . . . _____
  Group   . . . _____ . . . _____ . . . _____
  Type    . . . _____
  Member  . . . _____          (Blank or pattern for member selection list)

Other Partitioned Sequential or VSAM Data Set, or z/OS UNIX file:
  Name . . . . . 'PRDSS.R2221.JCL.CNTL(TEST01)' _____ +
  Volume Serial . . _____          (If not cataloged)

Workstation File:
  File Name . . _____

                                Options
-----
This action requires a connection with the workstation to be established. A
workstation connection can be established from ISPF Settings panel or enter
WSCON from any command line.
-----
Line Command Table . .
```



# WSA Non-GUI Transfer Files Using ISPF 3.7.2

# Overview

---

- The next few slides demonstrate how to transfer all members in a PDS file into a folder on the PC while connected to the Workstation Agent in Non-GUI display
- Note
  - Must have the Workstation Agent active and connected
    - Accomplished using GUI or Non-GUI display
  - Can download all PDS members
    - When uploading, can only transfer one member at a time

# ISPF 3.7.2

- Type in =3.7.2 to invoke the 'Download/Upload Data Set Utility'

```
Menu Utilities Compilers Options Status Help
-----
                                ISPF Primary Option Menu
Option ==> =3.7.2
                                More:      +
0 Settings      Terminal and user parameters      User ID . : R2221
1 View          Display source data or listings      Time. . . : 05:50
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 : IKJTSO01
7 Dialog Test  Perform dialog testing                      TSO prefix: R2221
10 SCLM        SW Configuration Library Manager           System ID : SDV21
11 Workplace   ISPF Object/Action Workplace              MVS acct. : TSOPRD
D Developer    Developers Workbench                       Release . : ISPF 6.3
E Ezyedit      ISPF Productivity Facility
S System       System Support Software
SD SDSF        System Display and Search Facility
U1 User1       Personal or Team Software (1)
U2 User2       Personal or Team Software (2)

Enter X to Terminate or Z to Terminate/Logoff
```

# Download

- Enter in the PDS and directory names, choose 'Transfer Option' 1 and select all three 'Options'

```
+-----+
| Menu  RefList  RefMode  Help |
+-----+
|                               |
| Download/Upload Data Set To/From Workstation |
| Command ==> _____ |
|                               |
| ISPF Library:                |
| Project . . . _____ |
| Group . . . _____ . . . _____ . . . _____ |
| Type . . . _____ |
| Member . . . _____ (Blank or pattern for member selection list) |
|                               |
| Other Partitioned or Sequential Data Set: |
| Name . . . . . 'PRDSS.R2221.JCL.CNTL' |
| Volume Serial . . . _____ (If not cataloged) |
|                               |
| Workstation File:            |
| File Name . . . . . C:\test0\*.txt |
|                               |
| Transfer Option                Options |
| 1 1. Download to workstation    /  Generate statistics on upload |
| 2. Upload from workstation      /  Transfer in text mode |
|                               /  Replace existing member/file |
+-----+
```

# Select all members

- Type in **S \*** to select all members to download and press **ENTER**

```
Menu  Functions  Utilities  Help
-----
MEMBER LIST  PRDSS.R2221.JCL.CNTL                      Row 00001 of 00211
Command ==> S *                                       Scroll ==> CSR_
  Name      Prompt      Size   Created      Changed      ID
-  $$$TITLE 0          2011/02/06   2011/05/12 09:45:00   R2221
-  $$DOC    27         2012/03/20   2014/03/13 16:01:45   R2221
-  ##DOC1   26         2014/10/16   2014/10/16 06:33:33   R2221
-  ##DSN    25         2012/05/24   2012/11/20 04:53:45   R2221
-  AFCLOGR1 33         2012/04/02   2014/10/23 13:29:26   R2221
-  ALIAS     3          2011/06/30   2013/01/16 13:42:25   R2221
-  ALIASDEF 12         2011/01/27   2011/02/15 07:03:00   RB112
-  ALIASMBR 28         2011/03/25   2011/03/25 05:52:16   R2211
-  A1       42         2012/05/24   2012/05/31 09:23:27   R2221
-  BATCH    18         2010/11/03   2014/10/23 13:42:55   R2221
-  BBDAHML  1          2012/12/15   2012/12/15 03:53:18   R2221
-  BRUCET   9          2013/06/26   2014/11/21 12:07:13   R2221
-  BR14     4          2011/10/24   2013/12/02 12:35:25   R2221
-  BR14A    2          2011/10/24   2011/10/24 16:19:12   R2221
-  BR14B    62         2010/11/16   2013/09/05 12:20:56   R2221
-  CA7      17         2012/05/11   2012/05/11 08:10:11   R2221
-  CA7BATCH 29         2013/09/05   2013/09/05 12:32:06   R2221
-  CA7QUE   18         2013/08/19   2013/08/19 09:53:29   R2221
-  CA7TEST
```

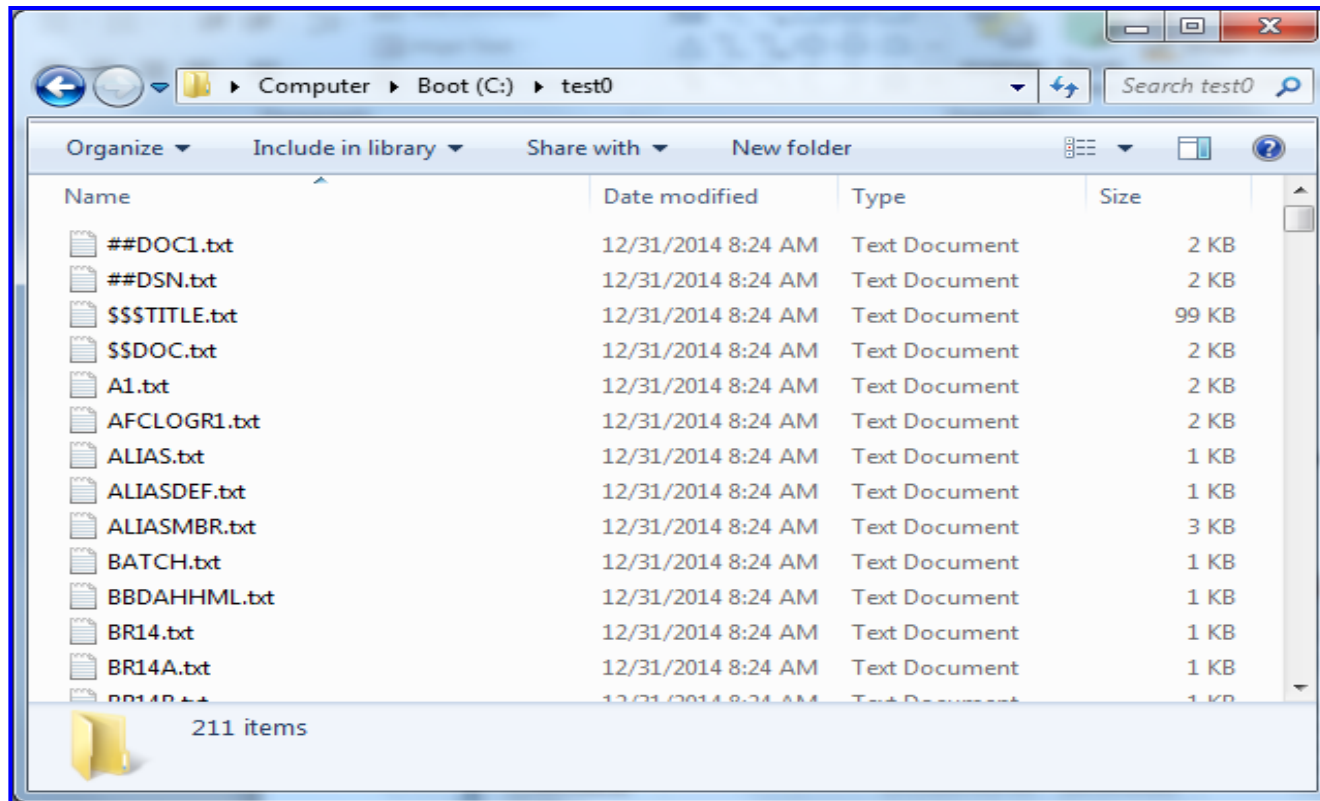
# Results

- Download was successful

```
Menu  Functions  Utilities  Help
-----
MEMBER LIST  PRDSS.R2221.JCL.CNTL
Command ==>
Name      Prompt      Size  Created      Changed      ID
---      -
$$$TITLE *XFER      0    2011/02/06   2011/05/12 09:45:00   R2221
--      -
$$DOC    *XFER      27    2012/03/20   2014/03/13 16:01:45   R2221
--      -
##DOC1   *XFER      26    2014/10/16   2014/10/16 06:33:33   R2221
--      -
##DSN    *XFER      25    2012/05/24   2012/11/20 04:53:45   R2221
--      -
AFCLOGR1 *XFER      33    2012/04/02   2014/10/23 13:29:26   R2221
--      -
ALIAS    *XFER       3    2011/06/30   2013/01/16 13:42:25   R2221
--      -
ALIASDEF *XFER      12    2011/01/27   2011/02/15 07:03:00   RB112
--      -
ALIASMBR *XFER      28    2011/03/25   2011/03/25 05:52:16   R2211
--      -
A1       *XFER      42    2012/05/24   2012/05/31 09:23:27   R2221
--      -
BATCH    *XFER      18    2010/11/03   2014/10/23 13:42:55   R2221
--      -
BBDAAHML *XFER
--      -
BRUCET   *XFER       1    2012/12/15   2012/12/15 03:53:18   R2221
--      -
BR14     *XFER       9    2013/06/26   2014/11/21 12:07:13   R2221
--      -
BR14A    *XFER       4    2011/10/24   2013/12/02 12:35:25   R2221
--      -
BR14B    *XFER       2    2011/10/24   2011/10/24 16:19:12   R2221
--      -
C +-----+ 221
C | Transfer of host data set to workstation completed successfully. | 221
C +-----+ 221
--      -
CA7TEST  *XFER      18    2013/08/19   2013/08/19 09:53:29   R2221
--      -
```

# Results – PC Folder

- All PDS members have been downloaded to the workstation



# Upload – Restriction

- When uploading, only one file can be transferred at a time

```
+-----+
| Menu  RefList  RefMode  Help |
+-----+
|                                     |
|           Download/Upload Data Set To/From Workstation |
| Command ==> _____ |
|                                     |
| ISPF Library: |
| Project . . . _____ |
| Group . . . _____ . . . _____ . . . _____ |
| Type . . . _____ |
| Member . . . _____ (Blank or pattern for member selection list) |
|                                     |
| Other Partitioned or Sequential Data Set: |
| Name . . . . . 'PRDSS.R2221.JCL.CNTL(TEST01) ' |
| Volume Serial . . . _____ (If not cataloged) |
|                                     |
| Workstation File: |
| File Name . . . . . C:\test0\TEST01.txt |
|                                     |
| Transfer Option | Options | |
| 2 1. Download to workstation | / Generate statistics on upload |
| 2 2. Upload from workstation | / Transfer in text mode |
| | | / Replace existing member/file |
+-----+
```



# Upload – Results

- Successfully uploaded one file to a PDS member

```
+-----+
| Menu  RefList  RefMode  Help |
+-----+
| SPRDC          Download/Upload Data Set To/From Work  Transfer completed |
| Command ==> |
|
| ISPF Library: |
|   Project . . . |
|   Group   . . . |
|   Type    . . . |
|   Member  . . . | (Blank or pattern for member selection list)
|
| Other Partitioned or Sequential Data Set: |
|   Name . . . . . 'PRDSS.R2221.JCL.CNTL(TEST01) ' |
|   Volume Serial . . . (If not cataloged) |
|
| Workstation File: |
|   File Name . . . . . C:\test0\TEST01.txt |
|
| Transfer Option          Options |
| 2 1. Download to workstation  /  Generate statistics on upload |
+-----+
| Transfer of host data set to workstation completed successfully. | le
+-----+
```

# WSA Transfer Files Using REXX

# Overview

---

- The next few slides demonstrate how to code and execute a REXX program to transfer files between the PC and mainframe while connected to the Workstation Agent
- Note
  - Must have the Workstation Agent active and connected
    - Accomplished using GUI or Non-GUI display

# Download File (📎)

- Example REXX program to download a mainframe file to the PC

```
/*%NOCOMMENT=====* REXX *=====*/
/*  PURPOSE:  Transfer a mainframe PDS member to a folder on the PC  */
/*=====*/
PCIPADDR = "182.66.20.190"           /* IP Address of PC      */
PCFILE   = "c:\test0\TEST01.txt"    /* PC Directory/File    */
MFFILE   = "'PRDSS.R2221.JCL.CNTL(TEST01)'" /* MF PDS Member      */
DDNAME   = "TEST"                  /* DD Name              */

ADDRESS TSO                          /* Allocate MF File     */
      "ALLOCATE FI("DDNAME") DS("MFFILE") SHR REUSE"

ADDRESS ISPEXEC                       /* Connect to WSA      */
      "WSCON IP(PCIPADDR) CODEPAGE(0037) CHARSET(0697) NOGUIDSP"
      "FILEXFER WS(PCFILE) HOST(MFFILE) TO(WS)" /* Xfer MF File to PC */
      "WSDISCON"                      /* Disconnect from WSA */

ADDRESS TSO                            /* Free MF File        */
      "FREE FI("DDNAME")"
```

# Upload File (📎)

- Example REXX program to upload a PC file to the mainframe

```
/*%NOCOMMENT===== * REXX *===== */
/*  PURPOSE:  Transfer a PC file to a seq. file on the mainframe  */
/*===== */
PCIPADDR = "182.66.20.190"          /* IP Address of PC  */
PCFILE   = "C:\test0\README.txt"   /* PC Directory/File */
MFFILE   = "'USERID()' .README.TXT" /* MF Sequential File */
DDNAME   = "TEST"                  /* DD Name           */

ADDRESS ISPEXEC                    /* Connect to WSA    */
  "WSCON IP(PCIPADDR) CODEPAGE(0037) CHARSET(0697) NOGUIDSP"
  "FILESTAT FILE(PCFILE) LRECL(MAXREC)" /* Get PC File Stats */
  LRECL = MAXREC + 4                /* Add 4 to LRECL   */

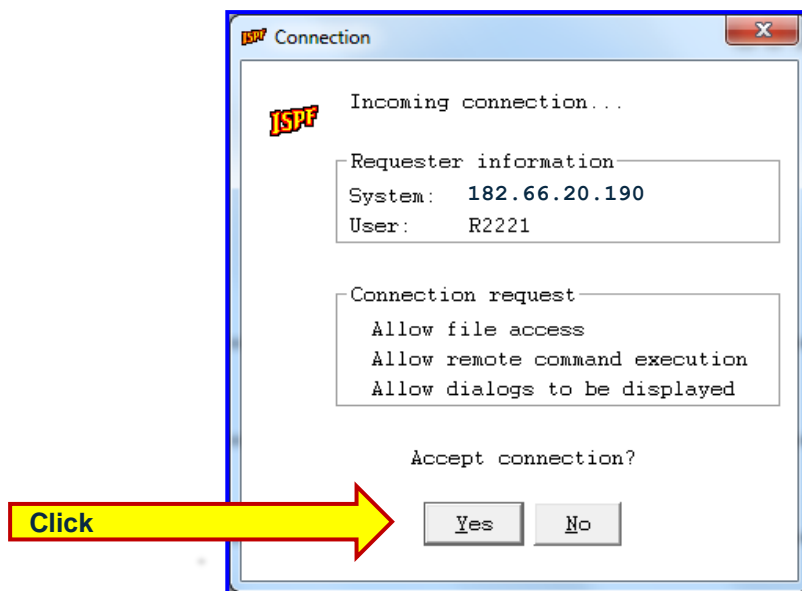
ADDRESS TSO                        /* Allocate MF File  */
  "ALLOCATE FI(DDNAME) DS(MFFILE) NEW CATALOG REUS",
  "RECFM(F B) LRECL(LRECL)"

ADDRESS ISPEXEC                    /* Xfer PC File to MF */
  "FILEXFER HOST(MFFILE) WS(PCFILE) TO(HOST) TEXT"
  "WSDISCON"                       /* Disconnect from WSA */
  "BROWSE DATASET(MFFILE)"          /* Browse MF file    */

ADDRESS TSO                        /* Free MF File     */
  "FREE FI(DDNAME)"
```

# Connection

- When executing these REXX programs, somewhere on the workstation the pop-up window below will appear
- Click the **Yes** button to activate the connection



# WSA Compatibility Issues

# Objective

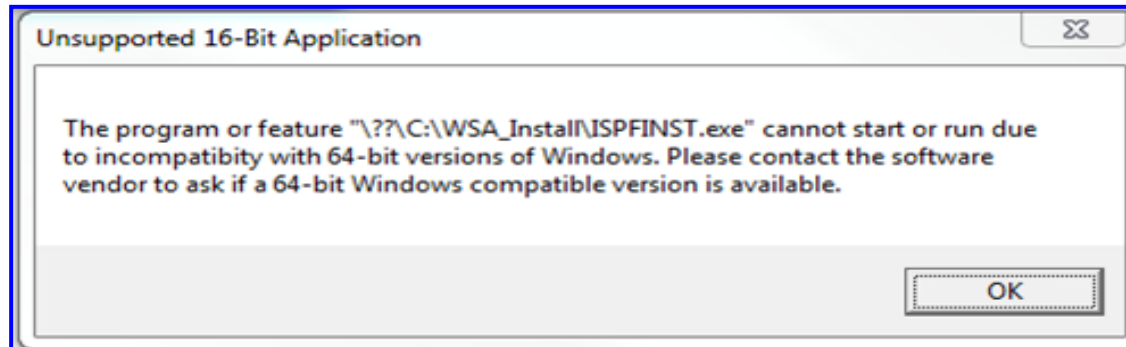
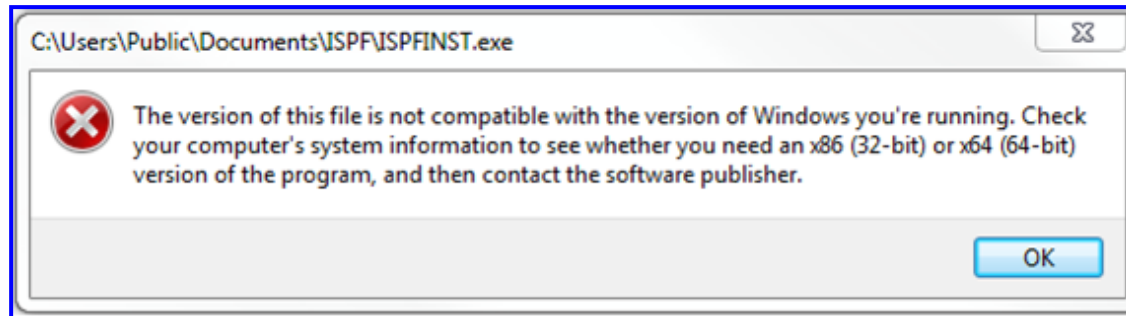
---

- The next few slides display pop-up windows with error messages that might be encountered when installing or invoking the WSA Client
- Issues
  - Did not download the WSA Client in binary format
  - Executing an out of date version of the WSA Client on Windows 7 or higher
  - ISPF and the WSA were updated
- Resolution
  - Suggest downloading (binary) and installing a new WSA client



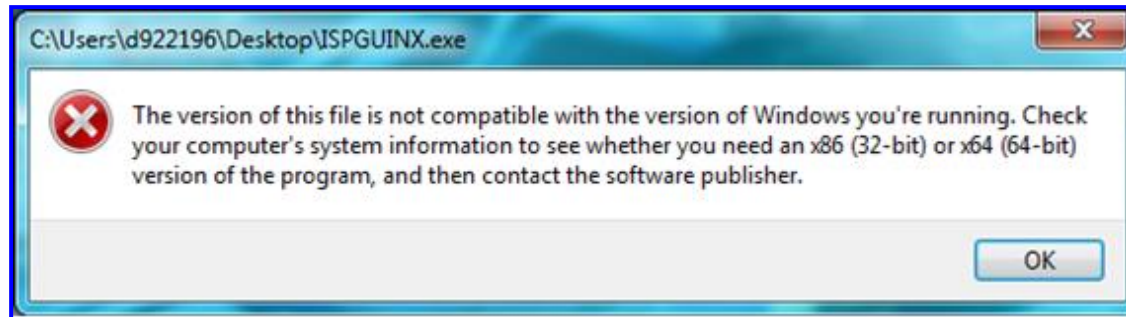
# WSA – Install

- Did not download the WSA Client in binary format



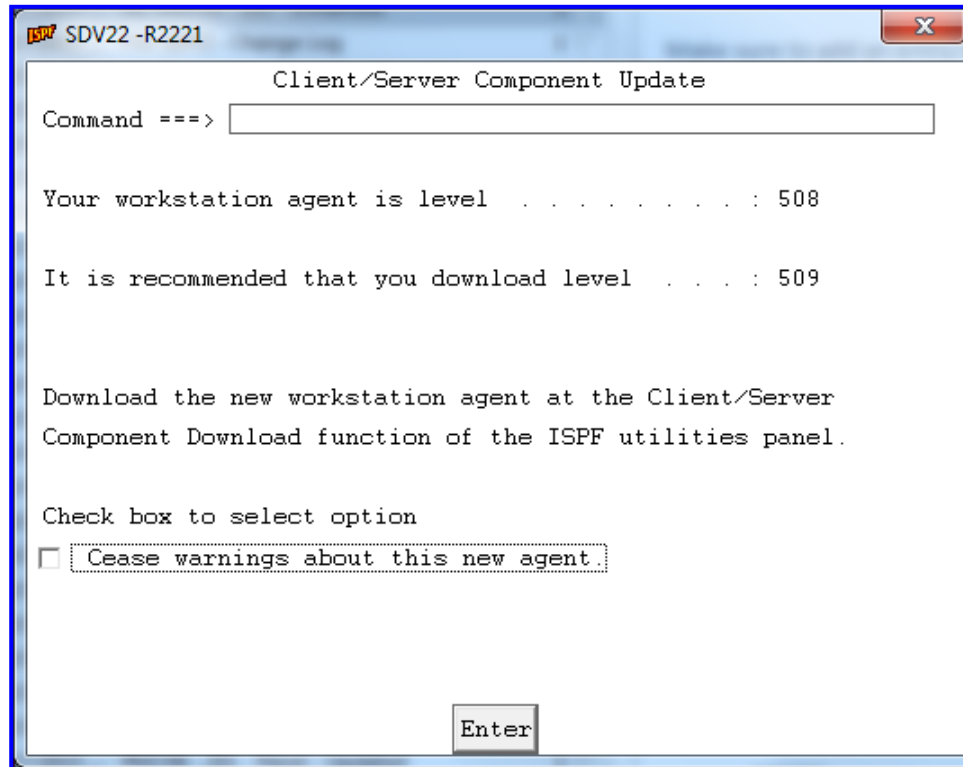
# WSA – Not Compatible

- Executing an out of date version of the WSA Client on Windows 7 or higher



# WSA – Updated

- ISPF and the WSA client were updated



# Links

# Manuals – ISPF

Version	Manual	Link
Website	N/A	<a href="#">ISPF – Manuals and Tools</a>
Red Manual	SG24-6981-02	<a href="#">ABC's of Z/OS Systems Programming – Vol 1</a>
V2R01	SC19-3619-00	<a href="#">ISPF – Dialog Developer's Guide and Reference</a>
V2R01	SC19-3620-00	<a href="#">ISPF – Dialog Tag Language Guide and Reference</a>
V2R01	SC19-3621-00	<a href="#">ISPF – Edit and Edit Macros</a>
V2R01	SC19-3622-00	<a href="#">ISPF – Messages and Codes</a>
V2R01	GC19-3623-00	<a href="#">ISPF – Planning and Customizing</a>
V2R01	SC19-3624-00	<a href="#">ISPF – Reference Summary</a>
V2R01	SC19-3625-00	<a href="#">ISPF – SCLM Guide and Reference</a>
V2R01	SC19-3626-00	<a href="#">ISPF – Services Guide</a>
V2R01	SC19-3627-00	<a href="#">ISPF – User's Guide – Vol 1</a>
V2R01	SC19-3628-00	<a href="#">ISPF – User's Guide – Vol 2</a>
V1R13	SC34-4821-09	<a href="#">ISPF – Dialog Developer's Guide and Reference</a>
V1R13	SC34-4824-09	<a href="#">ISPF – Dialog Tag Language Guide and Reference</a>

# Manuals – ISPF

Version	Manual	Link
V1R13	SC34-4820-10	<a href="#">ISPF – Edit and Edit Macros</a>
V1R13	SC34-4815-10	<a href="#">ISPF – Messages and Codes</a>
V1R13	GC34-4814-09	<a href="#">ISPF – Planning and Customizing</a>
V1R13	SC34-4816-10	<a href="#">ISPF – Reference Summary</a>
V1R13	SC34-4817-11	<a href="#">ISPF – SCLM Guide and Reference</a>
V1R13	SC34-4819-10	<a href="#">ISPF – Services Guide</a>
V1R13	SC34-4822-10	<a href="#">ISPF – User's Guide – Vol 1</a>
V1R13	SC34-4823-10	<a href="#">ISPF – User's Guide – Vol 2</a>

# Manuals – TSO

Version	Manual	Link
V2R01	SA32-0977-00	<a href="#">TSO – Administration</a>
V2R01	SA32-0975-00	<a href="#">TSO – Command Reference</a>
V2R01	SA32-0976-00	<a href="#">TSO – Customization</a>
V2R01	SA32-0979-00	<a href="#">TSO – General Information</a>
V2R01	SA32-0970-00	<a href="#">TSO – Messages</a>
V2R01	SA32-0984-00	<a href="#">TSO – Primer</a>
V2R01	SA32-0981-00	<a href="#">TSO – Programming Guide</a>
V2R01	SA32-0973-00	<a href="#">TSO – Programming Services</a>
V2R01	GA32-0983-00	<a href="#">TSO – System Diagnosis: Data Areas</a>
V2R01	SA32-0974-00	<a href="#">TSO – System Programming Command Reference</a>
V2R01	SA32-0971-00	<a href="#">TSO – User's Guide</a>

# SHARE – ISPF

Session	Author	Link
16630	Sam Reynolds	<a href="#">ISPF Hidden Treasures and New Features</a>
16628	Liam Doherty	<a href="#">ISPF Editor – Beyond The Basics Hands-on Lab</a>
15805	Bruce Koss	<a href="#">ISPF – An Experienced User Shares His Secrets</a>
14767	Peter Van Dyke	<a href="#">ISPF Behind the Scenes</a>
12718	Thomas Conley	<a href="#">Configuring ISPF for Fun and Profit</a>
11708	Peter Van Dyke	<a href="#">ISPF Panels Advanced</a>
8676	Peter Van Dyke	<a href="#">ISPF User's Boot Camp</a>
8363	Rod Feak	<a href="#">When Worlds Collide – ISPF Tools for the Windows World</a>
2277	Liam Doherty	<a href="#">ISPF Panels – Dialog Tag Language (DTL)</a>



# CBT – Tape

File	Author	Link
908	James Halley	<a href="#">ISPF Client Server Local Dialogs and Facilities</a>

# Websites ( )

Link
<a href="#">ABCs of Systems Programming</a>
<a href="#">Andy's MVS Page</a>
<a href="#">Cardett Associates – Database Query Tools</a>
<a href="#">CBT Tape</a>
<a href="#">DFSORT – Documentation and Code</a>
<a href="#">GSF Software – Downloads</a>
<a href="#">ISPF – Manuals and Tools</a>
<a href="#">ISPF – Request For Enhancement (RFE)</a>
<a href="#">Kenneth Tomiak – Stuff</a>
<a href="#">Ken's Universe</a>
<a href="#">Leonard Woren – Free Stuff</a>
<a href="#">Lionel B. Dyck – Freeware</a>
<a href="#">Mark's MVS Utilities</a>
<a href="#">Michael Joseph Clearly – Freeware</a>

# Websites (📎)

Link
<a href="#">Parallel Sysplex – Tools and Wizards</a>
<a href="#">PDS2PDS – PDS Comparison</a>
<a href="#">Planet MVS</a>
<a href="#">Redbooks – PDFs and Code</a>
<a href="#">Review – Browser and Editor</a>
<a href="#">REXX – Language Association</a>
<a href="#">Schlabb – REXX, TCPIP, etc.</a>
<a href="#">SDSF – Home Page</a>
<a href="#">SDSF – MODEL Examples</a>
<a href="#">SDSF – REXX Examples</a>
<a href="#">SHARE – Conference Proceedings</a>
<a href="#">Simo Time Enterprises – Programming Code Examples</a>
<a href="#">TASID – Downloads</a>
<a href="#">VM – Download Packages</a>

# Websites (📎)

Link
<a href="#">Watson &amp; Walker – Tuning Letter</a>
<a href="#">WLM – Downloads</a>
<a href="#">ZOS – V1R13 – PDF Manuals</a>
<a href="#">ZOS – V2R01 – PDF Manuals</a>

*Any questions or comments please contact*

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