Lab: System i Access for Web Using the Functions: 5250 Session

Linda Hirsch (LLHIRSCH@us.ibm.com), IBM Rochester System i Access for Web Development Team IBM Rochester, MN

http://www.ibm.com/systems/i/software/access/web/

© Copyright IBM Corporation, 2008. All Rights Reserved

Table of Contents

Lab Objective	3
Task 1: "Using Sessions" information	4
Task 2: Dynamically starting a 5250 Session	4
Task 3: Returning to an active session	6
Task 4: Workstation ID	6
Task 5: Changing the font size	8
Task 6: Macros	8
Task 7: Keypads	10
Task 8: Cursor sensitive help and prompting	11
Task 9: Changing active session settings	11
Task 10: Web view vs. Traditional view	13
Task 11: Saving session defaults	13
Task 12: Stopping an active session	14
Task 13: Configuring and starting a session	14
Task 14: Lab cleanup	16

Lab Objective

Even though System i Access for Web provides web browser based access to i5/OS, there may be times when a 5250 session may be needed to perform some interactive processing.

This lab will step you through the actions necessary to access the 5250 session.

Because the 5250 session is implemented using HTML, there are considerations that you should be aware of:

- This is not a full-function terminal emulator.
- It is not intended to replace Host On-Demand or Personal Communications.
- It is not intended to be used for "heads-down" data entry types of operations.
- It does not include file transfer, host print, intensity, extended attributes, graphics, etc.
- There is no direct interaction with i5/OS, so unsolicited i5/OS messages cannot be received. A special Refresh Screen button is provided on the HTML page so that unsolicited messages can be displayed.

Good luck with the lab exercises!

Please raise your hand if you have questions!

Task 1: "Using Sessions" information

- 1. If you currently have a browser open and it is displaying a System i Access for Web page that includes the navigation bar; you may skip to step 4, otherwise open a web browser.
- 2. Open the **System i Access for Web Main URL** from the lab worksheet section of the Lab Instructions package.
- 3. Sign on to i5/OS using the *User ID* and *Password* values from the lab worksheet.
- 4. Click the **5250** navigation tab on the left side of your browser window.
- 5. Click the **Start session** link.
- 6. Scroll down and select the **5250 user interface help** link.
- 7. A new browser window is started.
- 8. Scroll to the top and locate the subsection titled "Use Sessions".

This subsection contains several links to additional information that should be reviewed at this time. Each link will take you to useful information for using the 5250 session interface such as: Switching views, Active session settings, Macros, etc.

Task 2: Dynamically starting a 5250 Session

There are two ways to start a 5250 session: starting a previously configured session and dynamically starting a session. Starting a previously configured session allows you to configure the settings ahead of time, while starting a session dynamically allows you to change some session settings before starting the session.

- 1. Click the **5250** navigation tab on the left side of your browser window.
- 2. Click the **Start session** link.
- 3. Notice that you can change the system, port, code page, workstation ID, and other settings.

Important note

The bypass signon setting provides the ability to bypass the i5/OS Sign On screen when starting a 5250 session. This support requires that the i5/OS system value QRMTSIGN be set to *VERIFY. For more information on this support, see "Bypass Signon" in the "Use Sessions" section of the **5250 user interface help**.

- 4. Leave the field defaults as they are displayed.
- 5. Click the **Start Session** button.

- 6. Signon to the 5250 session using the same User ID and Password you used when logging into the browser session.
- 7. Press the Enter key or select the **Enter** button on the keypad below the 5250 screen until you get to a command prompt.
- 8. If your 5250 session is not at the "Main Menu," type the command **GO MAIN** and press the Enter key or select the **Enter** button on the keypad below the 5250 screen.
- 9. Type the command **DSPLIB QIWS** and press the Enter key or select the Enter button on the keypad below the 5250 screen.
- 10. Press the **Bottom** button displayed near the bottom of the 5250 screen.
- 11. Press the Page Down key or select the **Page Down** button on the keypad below the 5250 screen.

Important note

The 5250 session uses JavaScript to handle certain keystrokes. This support requires a JavaScript capable browser with JavaScript enabled. For more information on this support, see "Special Keystroke Handling" in the "Use Sessions" section of the **5250 user interface help**.

- 12. When the page down request completes, you should see a message at the bottom of the 5250 screen that reads "**Already at bottom of area**".
- 13. Position your mouse pointer over the "Already at bottom of area" text.
- 14. The mouse pointer should change to indicate the message can be selected.
- 15. Press the mouse button to select the link behind the message.
- 16. Additional message information will be displayed.
- 17. Press the F3 key until you are back at the "Main Menu."
- 18. Type the command **WRKACTJOB** and press the Enter key or select the **Enter** button on the keypad below the 5250 screen.
- 19. The cursor should be blinking in the **Opt** column of the first job in the displayed list.
- 20. Press the F1 key to display help for the available options.
- 21. The "OPTION HELP" will be displayed.
- 22. Press the PgDn (page down) key or select the **More** button at the bottom of the help text window to view more of the help text.
- 23. Press the F3 key until you are back at the "Main Menu."
- 24. Type the command **DSPSYSSTS** and press the Enter key or select the **Enter** button on the keypad below the 5250 screen.
- 25. Close all open browser sessions.

Task 3: Returning to an active session

This task assumes you have run the previous task. Assume in the previous task you were working in your office. You have now traveled home and will be accessing your i5/OS system remotely.

- 1. Open a web browser.
- 2. Open the System i Access for Web Main URL from the lab worksheet.
- 3. Sign on to i5/OS using the *User ID* and *Password* values from the lab worksheet.
- 4. Click the **5250** navigation tab on the left side of your browser window.
- 5. Click the **Active sessions** link.
- 6. The 5250 session that you had started in the previous task is still active and should be listed. This list is sorted by the last access time, with the session that was accessed last on top.
- 7. Click the **Reconnect** icon (in the Action column) to return to the session.
- 8. The "Display System Status" screen will be displayed just as it was when you closed the browser in the previous task.

If you press the F5 key, to refresh the display, you can see what changes occurred between the time you left the office and the time you connected remotely.

- 9. Press the F3 key until you are back at the "Main Menu."
- 10. Type the command **SIGNOFF** and press the Enter key or select the **Enter** button on the keypad below the 5250 screen.
- 11. Click the **Active sessions** link in the navigation bar on the left side of the browser window.
- 12. Click the **Stop** icon (in the Action column) to stop the currently active session.

Task 4: Workstation ID

This task assumes you have a browser open and it is displaying a System i Access for Web page that includes the navigation bar.

- 1. Click the **5250** navigation tab on the left side of your browser window.
- 2. Click the **Start session** link.
- 3. Under the Workstation ID field
 - 1. Select the **Specify workstation ID** radio button and enter a value of **WEBxx5250** (where xx is the number assigned to your team).
 - 2. Select the Avoid duplicates for this user checkbox.

3. Select the Avoid duplicates with other users checkbox.

Please note the following information regarding the Workstation ID:

The workstation ID identifies the device name (DEVNAME) used for the 5250 user interface session. The maximum length of this value is ten characters. Additional characters are truncated. The workstation ID cannot start with a number and it cannot contain a blank or any of the following characters: &, *, %, =, +. When a session is started, the device name is displayed in the **Display** field on the active session sign-on screen.

Use user ID

If this option is chosen, the System i Access for Web authenticated user ID is used for the workstation ID.

Specify workstation ID

Use this option to use a workstation ID of your choice. If a value is not entered, a value is generated by i5/OS.

Avoid duplicates for this user

Specify this option to avoid device name conflicts for the current user. When this option is enabled, the 5250 user interface adds a wild card character to the device name to make it unique for the current user. If the specified device name already contains ten characters, the last character is truncated before adding the wild card character. If this option is not enabled, only one session can be started with the specified device name. Start session requests with the same name cannot be started.

Avoid duplicates with other users

Specify this option to avoid device name conflicts with other users on the same system. When this option is enabled, i5/OS adds a wild card character to the device name to make it unique for all users on the system. If the specified device name already contains ten characters, the last character is truncated before adding the wild card character. If this option is not enabled, only one session can be started with the specified device name for the specified system. Start session requests with the same name cannot be started.

- 4. Click the **Start Session** button.
- 5. In the upper right of the Sign On screen, verify that the session was started with a Display identifier of WEBxx5250, or a slight variation of WEBxx5250.
- 6. Do not close this session; it will be used in the next task.

Task 5: Changing the font size

System i Access for Web displays pages using a font size based on the browser font size. We will use the browser settings to change the font size used by the 5250 session.

- 1. This task assumes you have run the previous task.
- 2. Use the browser menus to change the text size.
 - 1. If you are using Internet Explorer, select the **View** menu item, and then **Text Size**. Select a different size and notice that the 5250 session is displayed with a different size.
 - 2. If you are using Mozilla Firefox, select the **View** menu item, and then **Text Size**. Select **Increase Font** or **Decrease Font** and notice that the 5250 session is displayed with a different size.
- 3. Change the font size back to the original size.
- 4. Do not close this session; it will be used in the next task.

Task 6: Macros

- 1. This task assumes you have run the previous task.
- 2. Sign on to the 5250 session using the same User ID and Password you used when logging into the browser session.
- 3. Press the Enter key or select the **Enter** button on the keypad below the 5250 screen until you get to a command prompt.
- If your 5250 session is not at the "Main Menu," type the command GO MAIN and press the Enter key or select the Enter button on the keypad below the 5250 screen.
- 5. Click the **Start Recording** button in the Macros section (below the keypad under the 5250 screen).
- 6. Enter the command **WRKACTJOB** and press the Enter key or select the **Enter** button on the keypad below the 5250 screen.
- 7. Click the **Stop Recording** button in Macros section (below the keypad under the 5250 screen).
- 8. In the Macro field, enter **WAxx Active Jobs** (where xx is the number assigned to your team).
- 9. Click the Save Macro button.
- 10. Notice the new macro you just saved is in the Macro drop down list in the Macro section (below the keypad under the 5250 screen).
- 11. You can work with the macros you created. Click the **My macros** link at the bottom of the page.
- 12. Let's take a look at a macro. Click the **Edit** icon (in the Action column) for your macro.
- 13. Notice that you can change your macro here.

- 14. Also notice that in this environment, the macros are a series of cursor locations and keystrokes instead of cursor movements (right, left, up, down) and keystrokes.
- 15. Click the **5250 user interface help** link at the bottom of the page to see the syntax for macros.
- 16. Notice that the 5250 user interface help is displayed in a separate browser window.
- 17. Close the help window and return to the original 5250 screen.
- 18. We'll leave the macro as is. Click the **Cancel** button to get back to the macro list.
- 19. Select the **Active sessions** link.
- 20. Click the **Reconnect** icon to return to your session.
- 21. Press the F3 key until you are back at the "Main Menu."
- 22. Now we'll run the macro. Select the **WAxx Active Jobs** macro from the Macro drop down list.
- 23. Click the **Play Macro** button.
- 24. The "Work with Active Jobs" screen is displayed.
- 25. Press the F3 key until you are back at the "Main Menu."
- 26. You can also share your macros with other users. Click the **My macros** link near the bottom of the page.
- 27. Click the **Create shortcut** icon (in the Action column) for the macro you created.
- 28. In the Shortcut name field, enter **Shortcut to WAxx Active Jobs** (where xx is the number assigned to your team).
- 29. You now need to decide which users will have access to the shortcut you are creating. Access can be given to specific users, groups of users, or all users. In this example we will give access to all users in the WAxxGROUP (where xx is your team number). To do this:
 - 1. Select the Add... button
 - 2. Select **WAxxGROUP** in the Users list (where xx is your team number).
 - 3. Select the **OK** button.
- 30. Select the Create shortcut button.
- 31. The new macro shortcut is displayed in the macro list.
- 32. This shortcut is now available to all users in the WAxxGROUP. To see that the shortcut is shared with other users in the group:
 - 1. Open a new browser window.
 - 2. Open the **System i Access for Web Main URL** from the lab worksheet.
 - 3. Sign on as **WAxxADM** (where xx is your team number) using the *Password* value from the lab worksheet.
 - 4. Click the 5250 navigation tab on the left side of your browser window.
 - 5. Click on the **Start session** link.
 - 6. Select the **My macros** link near the bottom of the page.
 - 7. The macro shortcut is displayed in the macro list.

- 8. Close this browser window before continuing.
- 33. Select the **Active sessions** link.
- 34. Click the **Reconnect** icon (in the Action column) to return to your session.
- 35. Do not close this session; it will be used in the next task.

Task 7: Keypads

You can have up to three customizable keypads for your 5250 sessions. There is one keypad configuration per user. The keypads are not customizable on a per session basis.

- 1. This task assumes you have run the previous task.
- 2. Click the **My keypads** link at the bottom of the page.
- 3. Check the **Show keypad** checkboxes for the Top, Side and Bottom keypads.
- 4. Click the **Save** button.
- 5. Notice that there are now three keypads displayed for your 5250 session.
- 6. Now we will configure a keypad. Click the **My keypads** link at the bottom of the page.
- 7. We will put the macro we created from the previous exercise on the Top Keypad.
- 8. Select **1** in the Rows drop down list for the Top Keypad.
- 9. Select **1** in the Columns drop down list for the Top Keypad.
- 10. Click the **Configure** button for the Top Keypad.
- 11. Click the drop down arrow for the list.
- 12. Notice that the macro and macro shortcut you created are in the list (near the top of the list you may need to scroll up).
- 13. Select (macro) Shortcut toWAxx Active Jobs from the list.
- 14. Click the **OK** button.
- 15. Check the **Show keypad** checkbox for the top keypad.
- 16. Uncheck the **Show keypad** checkbox for the side keypad.
- 17. Click the **Save** button to save the keypad configuration.
- 18. Notice the button at the top of the 5250 window.
- 19. Go to a 5250 screen with a command prompt. If the Main menu is not displayed, run the command **GO MAIN** to go to the Main menu.
- 20. Press the Shortcut to WAxx Active Jobs button.
- 21. The "Work with Active Jobs" screen is displayed.
- 22. Press the F3 key until you are back at the "Main Menu."
- 23. Do not close this session; it will be used in the next task.

Task 8: Cursor sensitive help and prompting

Some 5250 applications are cursor sensitive. For example, i5/OS has cursor sensitive help and prompting. System i Access for Web 5250 user interface sessions allow you to place the cursor in a non-input field for those applications. This task shows that cursor sensitive functions are available.

- 1. This task assumes you have run the previous task.
- 2. Type the command **CRTLIB**, then press the F4 key or click the **Prompt** button in the 5250 screen.
- 3. Using your mouse, click on the "Library type" text on the left side of the session. This will make the current cursor position that of the "Library type" text.
- 4. Press the F1 key.
- 5. The "Library type (TYPE) Help" is displayed. This shows that the current cursor position was set to the "Library type" field.
- 6. Press the F12 key or click the **Cancel** button in the 5250 screen to remove the "Library type (TYPE) Help" text.
- 7. Using your mouse, click on the "Text 'description'" entry field where *BLANK is currently entered to make the current cursor position that field.
- 8. Press the F1 key.
- 9. The "Text 'description' (TEXT) Help" is displayed.
- 10. Press the F3 key until you are back at the "Main Menu."
- 11. Do not close this session; it will be used in the next task.

Task 9: Changing active session settings

You can change the properties of active sessions. The changes will only affect that particular session for the duration of that session.

- 1. This task assumes you have run the previous task.
- 2. Click the **Active session settings** link near the bottom of the page.
- 3. Scroll down to the **View** section of the settings.
- 4. Notice that Web view and Traditional view have separate settings.
- 5. We are using Web view right now, so we'll change one of the Web view settings. Web view uses a proportional font by default. Some screens may not display properly with a proportional font. Check the **Display text using fixed width font** checkbox in the Web column of the View section.
- 6. Click the **OK** button at the bottom of the page.
- 7. Notice that the 5250 session is now displayed using a fixed width font.
- 8. Click the **Active session settings** link near the bottom of the page.
- 9. Uncheck the **Show navigation bar** checkbox in the Web column of the View section.

- 10. Click the **OK** button at the bottom of the page.
- 11. Notice that the navigation bar is no longer displayed on the left side of the browser window.
- 12. Click the **Active session settings** link near the bottom of the page.
- 13. Uncheck the **Enable menu item as links** checkbox in the Web column of the View section.
- 14. Click the **OK** button at the bottom of the page.
- 15. Notice that the menu items on the "Main Menu" are no longer displayed as links.
- 16. Click the **Active session settings** link near the bottom of the page.
- 17. Uncheck the **Enable active function keys as buttons** checkbox in the Web column of the View section.
- 18. Click the **OK** button at the bottom of the page.
- 19. Notice that the function keys near the bottom of the 5250 screen are no longer buttons.
- 20. Click the Active session settings link near the bottom of the page.
- 21. Check the **Enable active function keys as buttons** checkbox in the Web column of the View section.
- 22. Check the **Show function key text (Fxx=) on button** checkbox in the Web column of the View section.
- 23. Click the **OK** button at the bottom of the page.
- 24. Notice that the function keys near the bottom of the 5250 screen are displayed as buttons and the "Fxx=" text is included on the buttons.
- 25. Click the **Active session settings** link near the bottom of the page.
- 26. Check the **Show active sessions** checkbox in the Web column of the View section.
- 27. Click the **OK** button at the bottom of the page.
- 28. Notice that the list of Active Sessions is displayed below the Macros section. This is the same list that is displayed when selecting the Active sessions link on the navigation bar on the left side of the browser window.
- 29. Click the **Active session settings** link near the bottom of the page.
- 30. Click the **Load Defaults** button at the bottom of the page.
- 31. Notice that the settings are restored to their original values.
- 32. Click the **OK** button at the bottom of the page.
- 33. Notice that the 5250 session is displayed the same as it was at the beginning of this task.
- 34. Do not close this session; it will be used in the next task.

Task 10: Web view vs. Traditional view

The 5250 interface presents two customizable views: Web and Traditional. By default, the web view tries to present the 5250 session as a web page, while the traditional view tries to preserve the green screen look and feel. As you have seen in the previous section, each view is fully customizable.

- 1. This task assumes you have run the previous task.
- 2. Click the **Traditional view** link near the bottom of the page.
- 3. Notice that the 5250 session is displayed with a traditional "green screen" look.
- 4. Click the **Web view** link near the bottom of the page.
- 5. Notice that the 5250 session is displayed with a web look.
- 6. Do not close this session; it will be used in the next task.

Task 11: Saving session defaults

You can save your session settings as your session defaults. Session defaults are settings that are used when dynamically starting a session or configuring a new session. Starting with the V5R3 version of System i Access for Web, you can also have default session settings that are used by all users, groups of users, or other individual users (the steps required to accomplish this are covered in Task 13).

- 1. This task assumes you have run the previous task.
- 2. Click the **Active session settings** link near the bottom of the page.
- 3. Check the **Display text using fixed width font** checkbox in the Web column of the View section.
- 4. Click the **Save As Defaults** button at the bottom of the page.
- 5. Your current session settings are now your default settings.

Important note

Saving the default settings did not change the settings for the active session. If you wanted to change the settings for the active session, you would also need to click the **OK** button at the bottom of the page. Please do not change the settings for the active session at this time.

- 6. Click the **Start session** link in the navigation bar on the left side of the browser window.
- 7. Click the **Start Session** button.
- 8. Notice that the new session has been started using a fixed width font.

- 9. We will now reset the session settings back to the shipped defaults. Click the **Active session settings** link near the bottom of the page.
- 10. Click the Load Shipped Defaults button at the bottom of the page.
- 11. Notice that the **Display text using fixed width font** checkbox has been unchecked.
- 12. Click the **Save As Defaults** button at the bottom of the page.
- 13. Your default settings have now been reset to the shipped defaults.
- 14. Do not close this session; it will be used in the next task.

Task 12: Stopping an active session

- 1. This task assumes you have run the previous task.
- 2. Click the **Active sessions** link in the navigation bar on the left side of the browser window.
- 3. Notice that a list of your active sessions is displayed. From the list, you can reconnect or stop a session.
- 4. We will reconnect a session to verify that it is the session we want to stop. Click the **Reconnect** icon (in the Action column) for the session you wish to stop.
- 5. The 5250 session is displayed.
- 6. If the session is not at the "Sign On" screen, do one of the following to sign off from the session.
 - Type the command **SIGNOFF** at the command prompt and press the Enter key or click the **Enter** button on the keypad below the 5250 screen.
 - Click the menu item link (**90.**) for the "Sign off" menu item on the "Main Menu."
- 7. Click the **Stop session** button on the keypad below the 5250 screen to stop the session.
- 8. The active sessions list is displayed.
- 9. Notice that the session has been removed from the list of active sessions.

Task 13: Configuring and starting a session

- 1. This task assumes you have run the previous task.
- 2. Click the **Configured sessions** link in the navigation bar on the left side of the browser window.
- 3. Select **Configure new session...** from the drop-down list near the top of the page.
- 4. Click the **Perform action** icon (to the right of the drop-down list).

- 5. Notice that the session settings are the shipped defaults set in Task 11.
- 6. Type **MYxx 5250 session** (where xx is the number assigned to your team) in the Session field of the General Section.
- 7. Make any other changes to the settings that you desire to make.

Important note

Clicking on the Help icon (a question mark) near each section heading displays help text for the fields in that section in a separate browser window.

- 8. Click the **Save** button at the bottom of the page.
- 9. The list of configured sessions is displayed.
- 10. Notice that the session you just configured is in the list.
- 11. If you want to share this session configuration with other users or even have it be the default session configuration for all users, a shortcut to the session must be created. Click the **Create Shortcut** icon (in the Action column) for the session.
- 12. The Create Shortcut page is displayed.
- 13. Click the Add... button to the right of the Access edit field.
- 14. The list of user profiles is displayed.
- 15. If you want the session shortcut to be accessible by all users, select **All users** from the list; otherwise you can select an individual user profile or group profile.
- 16. Click the **OK** button.
- 17. The Create Shortcut page is displayed with the selected user profile(s) in the Access field. If you selected All users, the field will contain *PUBLIC.
- 18. Click the **Create shortcut** button.
- 19. The list of configured sessions is displayed.
- 20. If you selected All users, your group profile, one of your supplemental groups, or your user profile for the value of the Access field, the shortcut you just created will be in the list and the value in the Access column will matche the value specified in the Access field when creating the shortcut.
- 21. If you want the session configuration information to be used as the default session settings for other users, you must use the Customize function of System i Access for Web. This lab will not walk you through doing this.

Important note

To use the Customize function you must be running as an administrator. Once signed on to System i Access for Web as an administrator (WAxxADM for this lab), go to the **Customize** tab, select **Policies**, select the profile you want to work with, click the **Edit Policies** button, select the **Edit** icon (in the Action column) for the 5250 category, and select the shortcut name to be used for the default session settings in the drop down list for the **Configured session to use for defaults** policy. **PLEASE DO** **NOT CHANGE** these settings for *PUBLIC during this lab task. If you want to try this, change the policy settings for your WAxx, WAxxADM, or WAxxGROUP profiles.

- 22. Clicking on the Start link would start the session in the current browser window. We will start the new session in a new window instead. Click the right mouse button on the **Start** icon (in the Action column) for the session or shortcut you would like to start.
- 23. A context menu is displayed.
- 24. Select Open Link in New Window.
- 25. The 5250 session is started in a new browser window.
- 26. Click the **Stop Session** button on the keypad below the 5250 screen to stop the session.
- 27. Close this browser window.

Task 14: Lab cleanup

- 1. This task assumes you have run the previous task.
- 2. Click the **Configured sessions** link in the navigation bar on the left side of the browser window.
- 3. Click the **Delete** icon (in the Action column) for the session named MYxx 5250 session (where xx is the number assigned to your team) to delete the session configuration.
- 4. The **Confirm Delete Configured Session** page is displayed.
- 5. Click the **Delete Configured Session** button to confirm that the session configuration should be deleted.
- 6. The list of configured sessions is displayed.
- 7. Notice that the session configuration and the shortcut to the session configuration have been removed from the list of configured sessions.
- 8. Repeat steps 3-5 for any other sessions you created.
- 9. Click the **My Macros** link near the bottom of the page.
- 10. The list of macros is displayed.
- 11. Click the **Delete** icon (in the Action column) for the WAxx Active Jobs macro.
- 12. The **Confirm Delete Macro** page is displayed.
- 13. Click the **Delete Macro** button to confirm that the macro should be deleted.
- 14. The list of macros is displayed.
- 15. Notice that the macro and the shortcut to the macro have been removed from the list of macros.
- 16. Repeat steps 11-13 for any other macros you created.
- 17. Click the **Active sessions** link in the navigation bar on the left side of the browser window.
- 18. The list of active sessions is displayed.

- 19. Click the **Stop** icon (in the Action column) for one of the active session in the list to stop the session.
- 20. Repeat step 19 for each active session in the list.

Congratulations!

You have completed this section of the System i Access for Web lab!

Tradmarks and Disclaimers

© IBM Corporation 1994-2008. All rights reserved.

References in this document to IBM products or services do not imply that IBM intends to make them available in every country.

Trademarks of International Business Machines Corporation in the United States, other countries, or both can be found on the World Wide Web at http://www.ibm.com/legal/copytrade.shtml.

- Intel, Intel logo, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Celeron, Intel Xeon, Intel SpeedStep, Itanium, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.
- Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.
- Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.
- IT Infrastructure Library is a registered trademark of the Central Computer and Telecommunications Agency which is now part of the Office of Government Commerce.
- ITIL is a registered trademark, and a registered community trademark of the Office of Government Commerce, and is registered in the U.S. Patent and Trademark Office.
- UNIX is a registered trademark of The Open Group in the United States and other countries.
- Java and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.

Other company, product, or service names may be trademarks or service marks of others.

Information is provided "AS IS" without warranty of any kind.

The customer examples described are presented as illustrations of how those customers have used IBM products and the results they may have achieved. Actual environmental costs and performance characteristics may vary by customer.

Information concerning non-IBM products was obtained from a supplier of these products, published announcement material, or other publicly available sources and does not constitute an endorsement of such products by IBM. Sources for non-IBM list prices and performance numbers are taken from publicly available information, including vendor announcements and vendor worldwide homepages. IBM has not tested these products and cannot confirm the accuracy of performance, capability, or any other claims related to non-IBM products. Questions on the capability of non-IBM products should be addressed to the supplier of those products.

All statements regarding IBM future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

Some information addresses anticipated future capabilities. Such information is not intended as a definitive statement of a commitment to specific levels of performance, function or delivery schedules with respect to any future products. Such commitments are only made in IBM product announcements. The information is presented here to communicate IBM's current investment and development activities as a good faith effort to help with our customers' future planning.

Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput or performance that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput or performance improvements equivalent to the ratios stated here.

Prices are suggested U.S. list prices and are subject to change without notice. Starting price may not include a hard drive, operation system or other features. Contact your IBM representative or Business Partner for the most current pricing in your geography.

Photographs shown may be engineering prototypes. Changes may be incorporated in production models.