IBM Workplace Services Express 2.6 on System i lab:
Installation and configuration
version 2

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Abstract

This lab guides you through the installation and configuration process of IBM Workplace Services Express 2.6 on the IBM System i platform running the IBM i5/OS operating system. You will learn how to prepare your System i model, download the Workplace Services Express images, and install the product. You will also configure a Workplace Services Express instance that is secured with Lightweight Directory Access Protocol (LDAP).

Introduction

IBM® Workplace™ Services Express is a set of collaborative software that facilitates communication among team members who need to work together more efficiently. Through the same collaborative portal interface, users access their applications, share online work areas, and create, edit and share documents from any computer with a browser. Workplace Services Express has ready-to-use team tools (portlets) and templates, so individuals and teams can get results and make decisions quickly. Portlets created with IBM iSeries™ Access for Web, IBM WebFacing Tool (part of IBM WebSphere® Development Studio Client for iSeries), and IBM WebSphere Host Access Transformation Services (HATS) deploy in the Workplace Services Express portal to enable access to IBM System i™ resources and applications from the portal interface. Workplace Services Express provides a collaboration environment based on open standards, which can be rapidly implemented. Workplace Services Express includes:

- Easy-to-use, customizable team spaces where groups of users can collaborate
- Document management support to create, edit and share documents
  (integrates with Microsoft® Office and OpenOffice)
- Instant messaging (IM) and presence awareness
- Access to Microsoft Exchange or IBM Lotus® Domino® mail servers
- Integrated portal

On the IBM System i platform, all components of a Workplace Services Express solution can run on a single IBM i5/OS® partition. The typical components of a Workplace Services Express solution include a Web server, an application server, a database, an LDAP directory, and optionally, a Lotus Domino server for mail and traditional System i applications that run with the 5250 interface.

What is new in Workplace Services Express 2.6

The following list summarizes the enhancements in Workplace Services Express 2.6:
- Includes IBM Workplace Designer:
  - An intuitive, visual development tool
  - Targeted to script developers and Lotus Domino application developers
  - Java™ development skills not needed
  - Developers with Java skills can make use of Workplace APIs
- Comes with performance improvements
- Offers continual improvements in code design
- Has added directory and Exchange support
- Can be used with the latest Domino 7 directory
- Offers in-the-box portlet support for Microsoft Exchange 2003
- Includes IBM DB2® Express (not relevant to i5/OS)
- Offers several System i exclusives, such as:
  - Simplified installation of WebSphere Application Server and PTF prerequisites
  - Support for i5/OS Version 5 Release 4
  - Initial performance tuning, which can be implemented rapidly
  - Workplace tools for i5/OS

    o   IBM Web Administration for i5/OS configuration

Prerequisites

You must download the installation media as described in the section "Downloading Workplace Services Express 2.6 images (production version)." Alternatively, you can order the physical media.

Reference documentation

Web sites listed in the "Resources" section of this lab include useful references to supplement the information contained in this document.

Sizing the System i model

You must size your system using the IBM eServer™ Workload Estimator or IBM Techline sizing support. See the "Resources" section of this lab for information on how to access sizing resources.

Ensuring the minimum required hardware

The Workplace Services Express Information Center Web site documents the minimum hardware requirements for Workplace Services Express on the System i platform. The "Resources" section provides a listing for this Web site.

Based on practical experience, your system will need the following minimum hardware:

- Demonstration or proof of concept (PoC) system:
  - An IBM eServer iSeries 810 (2-way, 750 MHz) model or an IBM POWER4™ 1.1 GHz processor or higher

  Note: On an IBM System i5™ 520 model, do not use processor features #8950, #8951, and #8952 (1000 CPW and below) for demonstrations and PoCs. Do not user partial processor (less than a full processor) on the partition where you will be deploying Workplace.

  - 6 gigabytes of RAM
  - 6 disk drive arms

- **Production system:**
  - System i model 520 with processor feature #8953 or an IBM POWER5™ 1.5 GHz processor, 2400 CPW
  - 6 gigabytes of RAM
  - 6 to 10 disk drive arms
  - 3 gigabytes of disk space for installation
  - 4 gigabytes of disk space for each instance
  - Additional disk space must be sized based on the Workplace Services Express application (for example, the document-library data store).

  Note: For optimal response time, an IBM POWER5+™ processor with minimum 3800 CPW and L3 cache is highly recommended for production environment.

Downloading Workplace Services Express 2.6 images

You can download the Workplace Services Express 2.6 package from the Web site listed in the "Resources" section of this lab.

Note: Before starting this download, the IBM Business Partner company must be registered with the IBM PartnerWorld® program, and the person performing this task must be listed as a contact. If you are not registered, then locate the primary contact in your company for the PartnerWorld membership information before continuing with this paper.

Note: If your company has purchased Workplace Services Express licenses, you can download a production version of this software after logging in by using your IBM Passport Advantage® user ID and password.

Workplace Services Express 2.6 comes with a special license that allows you to install and deploy the product for evaluation for 120 days at no charge. You can download the Workplace Services Express evaluation version from the Passport Advantage Web site listed in the "Resources" section.

To download this version, complete the following steps:

1. Click **Trials and betas** (see Figure 1).
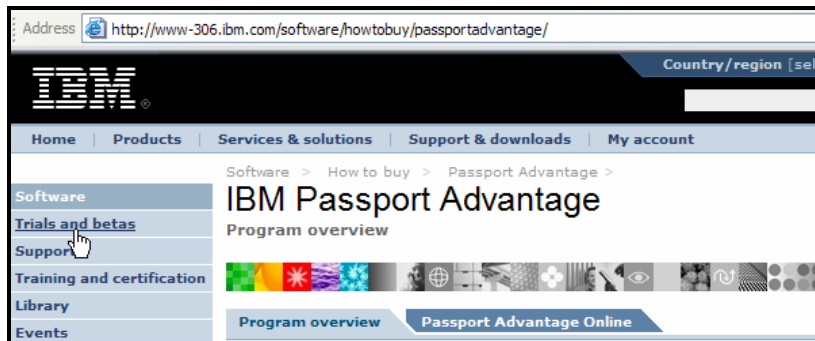
Figure 1. IBM Passport Advantage home page

2. In the **Overview** tab, find the **Search for** box:
   a. Type `workplace services express` (see Figure 2).
   b. To initiate your search, click the **Search** button.
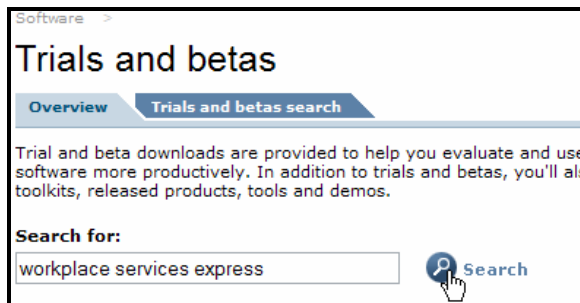
Figure 2. Trials and betas (search for "workplace services express")

3. To download, the product, click **Trial: Workplace Services Express, Operating System: iSeries, Version 2.6** (see Figure 3).
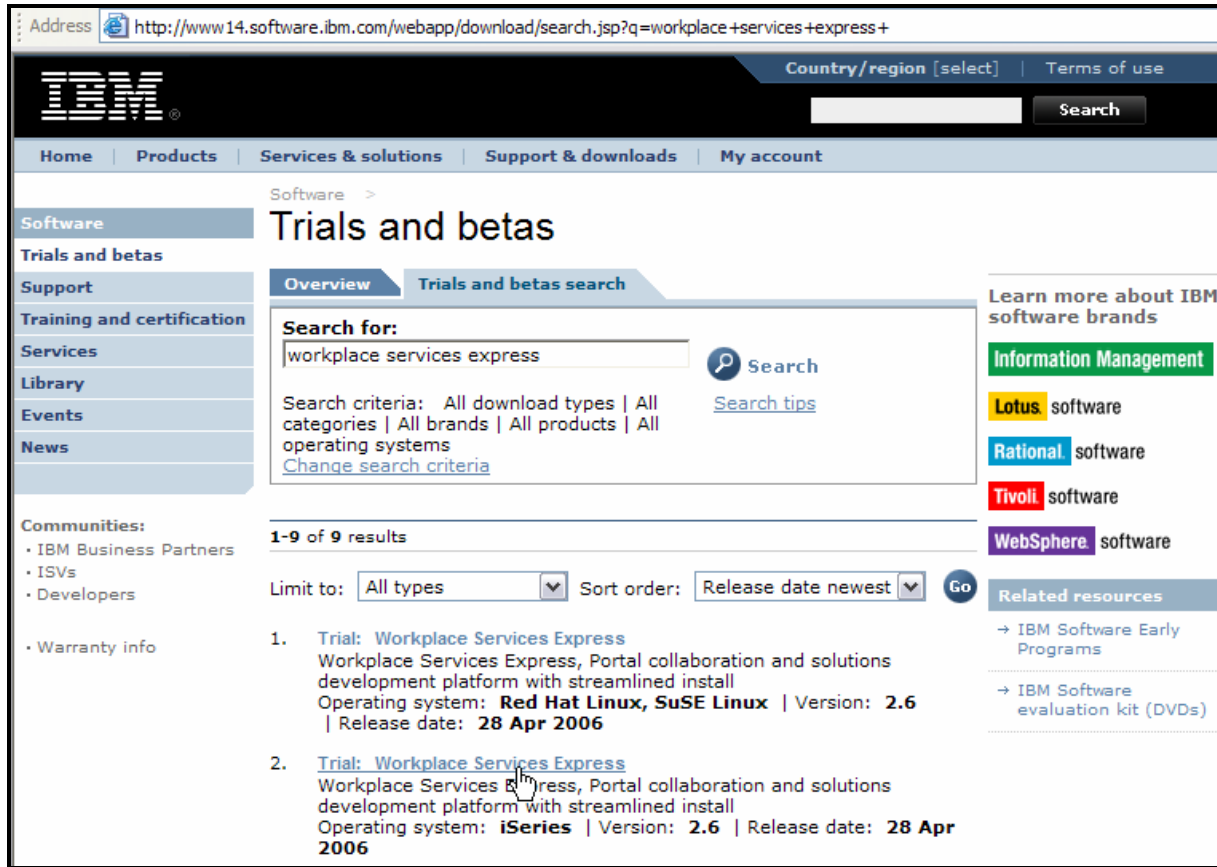
Figure 3. Trials and betas (download trial)

After you download the trial version, a simple utility allows you to convert the evaluation license to a full production license. For more information, refer to "Evaluating IBM Workplace Services Express" at the link provided in the "Resources" section.

Downloading Workplace Services Express 2.6 images (production version)

Perform the following steps to download the electronic images of Workplace Services Express 2.6:

1. Create a directory on your local PC where you will store the downloaded images, for example: `c:\wse26_images`

2. Access the software downloads Web site listed in the "Downloading Workplace Services Express 2.6 images" section.

Figure 4 shows the IBM intranet software downloads Web site.
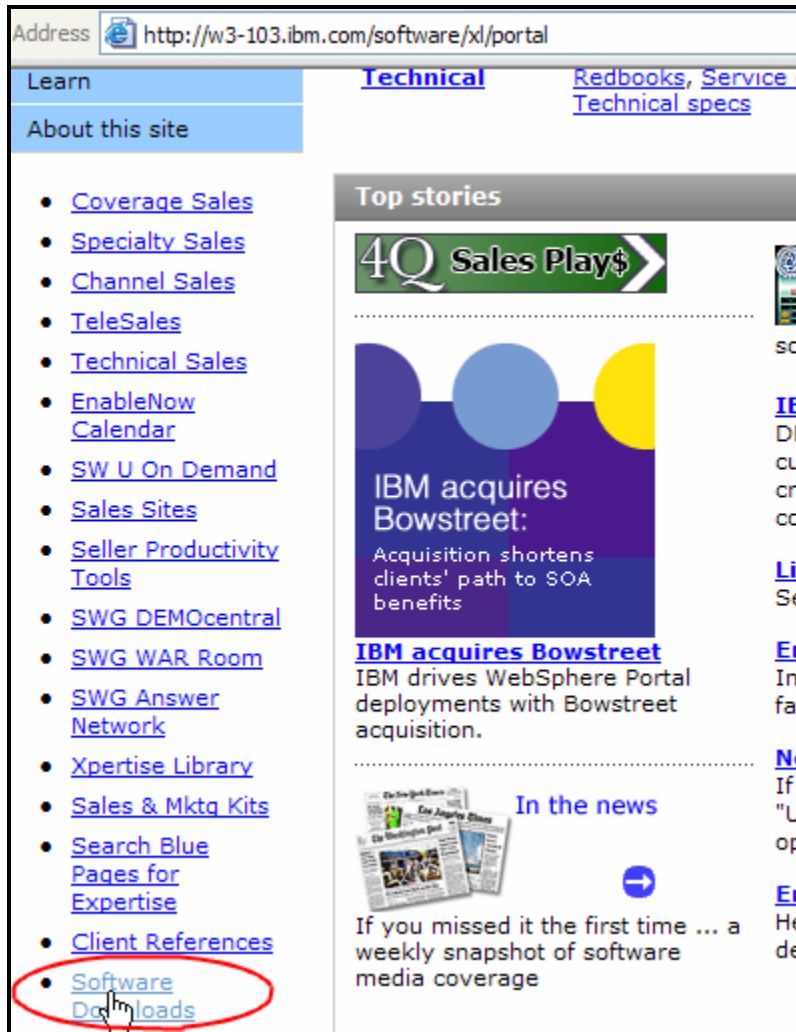
Figure 4. IBM intranet software downloads

4. Log on with the corresponding user ID and password. For example:
   - If you are an IBM employee, use your IBM intranet user ID and password.
   - If you are an IBM Business Partner or IBM Business Partner customer, use your PartnerWorld user ID and password.
   - If you are an IBM client, use your Passport Advantage user ID and password.

5. On the Find by search text panel, enter the search text `workplace services express v2.6` (see Figure 5) and click the **Search** button to find the software.

Figure 5. Find by search text

6. Expand **Lotus Software** -> **IBM Workplace Services Express V2.6 for iSeries Multilingual eAssembly (CR3R0ML)**.
7. Download the following images (see Figure 6):

IBM Workplace Services Express V2.6
for iSeries Multilingual eAssembly
(CR3R0ML)
28-
Apr-
2006

Important! This software is licensed as an eAssembly. You may not transfer or remarket individual products from it as this would violate the license terms applicable to the eAssembly. Your acceptance of the license terms applicable to the eAssembly is a precondition to your downloading and using the eAssembly.

☐ Select All

☑ IBM Workplace Services Express V2.6 Read Me First for Windows,Linux and iSeries International English (C90Q5IE) | 27-Apr-2006 | 0.5

☑ IBM Workplace Services Express V2.6 Server Install for Linux and i5/OS Multilingual (C927SML) | 30-Jun-2006 | 505.0

☑ IBM Workplace Services Express V2.6 Server Install Archive 1 of 3 for Linux and iSeries Multilingual (C90SJML) | 27-Apr-2006 | 641.0

☑ IBM Workplace Services Express V2.6 Server Install Archive 2 of 3 for Linux and iSeries Multilingual (C90SKML) | 27-Apr-2006 | 551.0

☑ IBM Workplace Services Express V2.6 Server Install Archive 3 of 3 for Linux and iSeries Multilingual (C90SLML) | 27-Apr-2006 | 633.0

☑ IBM Workplace Services Express V2.6, WebSphere Application Server V5.0 for i5/OS Install 1 of 2 Multilingual (C927YML) | 30-Jun-2006 | 855.0

☑ IBM Workplace Services Express V2.6, WebSphere Application Server V5.0 for i5/OS Install 2 of 2 Multilingual (C927ZML) — 30-Jun-2006 — 556.0

☑ IBM Workplace Services Express V2.6, WebSphere Application Server V5.0 for i5/OS V5R3 PTFS 1 of 2 Multilingual (C9280ML) — 30-Jun-2006 — 931.0

☑ IBM Workplace Services Express V2.6, WebSphere Application Server V5.0 for i5/OS V5R3 PTFS 2 of 2 Multilingual (C9281ML) — 30-Jun-2006 — 853.0

☑ IBM Workplace Services Express V2.6, WebSphere Application Server V5.0 for i5/OS V5R4 PTFS 1 of 2 Multilingual (C9282ML) — 30-Jun-2006 — 909.0

☑ IBM Workplace Services Express V2.6, WebSphere Application Server V5.0 for i5/OS V5R4 PTFS 2 of 2 Multilingual (C9283ML) — 30-Jun-2006 — 743.0

☑ IBM Workplace Designer V2.6 Runtime, Unix based Multilingual (C87U5ML) — 16-Jan-2006 — 80.0

☑ IBM Workplace Designer V2.6 Tool, Unix based Multilingual (C89MIML) — 23-Feb-2006 — 195.0

Figure 6. Download Workplace Services Express and prerequisite WebSphere products

Table 1 shows the Workplace Services Express electronic image part numbers and corresponding description.

Image part number	Image description
C90Q5IE.pdf	Workplace Services Express 2.6 Read Me First International English
C927SML.tar	Workplace Services Express 2.6 Server Install Multilingual
C90SJML.tar	Workplace Services Express 2.6 Server Install Archive 1 of 3 Multilingual
C90SKML.tar	Workplace Services Express 2.6 Server Install Archive 2 of 3 Multilingual
C90SLML.tar	Workplace Services Express 2.6 Server Install Archive 3 of 3 Multilingual
C927YML.exe	Workplace Services Express 2.6, WebSphere Application Server V5.0 for i5/OS Install 1 of 2
C927ZML.exe	Workplace Services Express 2.6, WebSphere Application Server V5.0 for i5/OS Install 2 of 2
i5/OS V5R3 Only	
C9280ML.exe	Workplace Services Express 2.6, WebSphere Application Server V5.0 for i5/OS V5R3 PTFs 1 of 2
C9281ML.exe	Workplace Services Express 2.6, WebSphere Application Server V5.0 for i5/OS V5R3 PTFs 2 of 2
i5/OS V5R4 Only	
C9282ML.exe	Workplace Services Express 2.6, WebSphere Application Server V5.0 for i5/OS V5R4 PTFs 1 of 2
C9283ML.exe	Workplace Services Express 2.6, WebSphere Application Server V5.0 for i5/OS V5R4 PTFs 2 of 2

Table 1. Workplace Services Express image part number and description

Figure 7 shows the c:\wse26_images directory after downloading the product, WebSphere and PTF prerequisites.
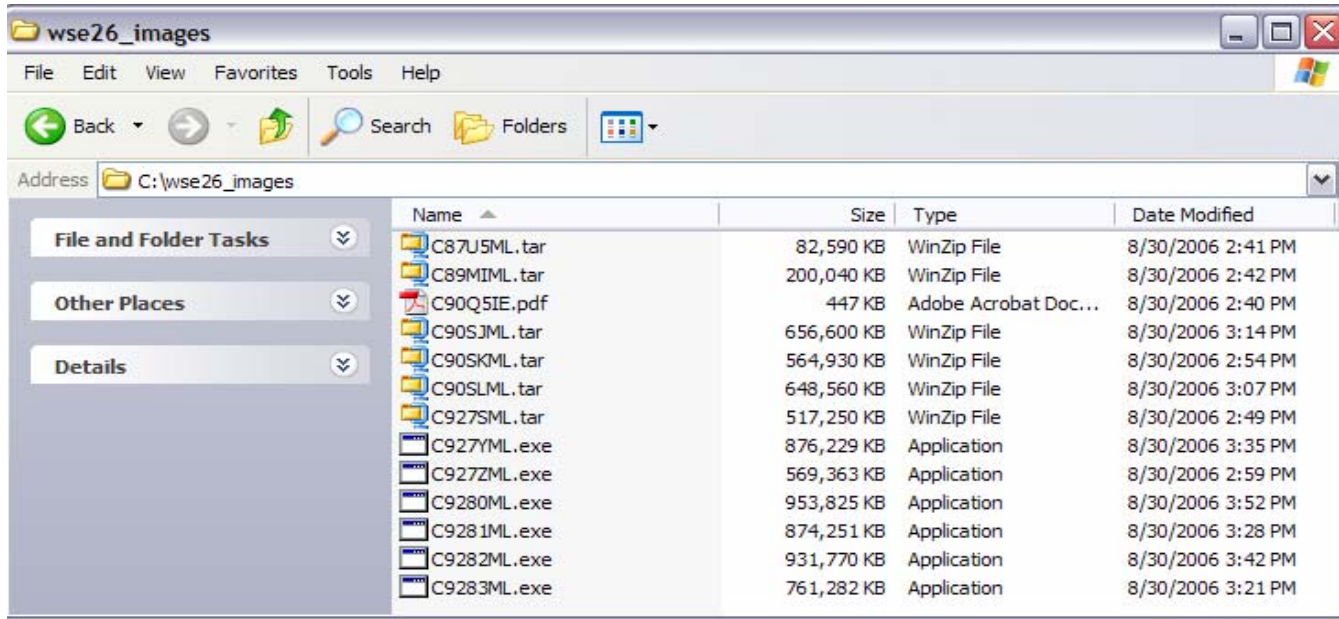
Figure 7. Files in c:\wse26_images directory (Workplace Services Express, WebSphere Application Server, i5/OS V5R3 and V5R4 electronic images

Assembling the WebSphere prerequisite products and PTFs

Figure 8 shows the c:\wse26_images directory after extracting the WebSphere and PTF prerequisites images. Notice the subdirectories WAS50, V5R4Groups, and V5R3Groups that were created by extracting the .exe files. You only need one of the PTF directories (V5R3Groups or V5R4Groups) depending on the i5/OS version on which you perform the installation.
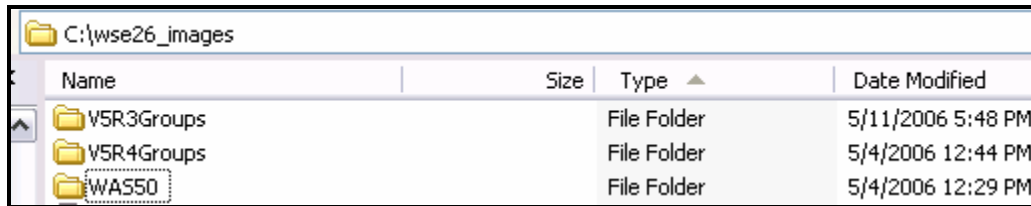
Figure 8. WebSphere prerequisite products and PTFs

Assembling the downloaded product images

These instructions assume that you have downloaded the Workplace Services Express 2.6 production installation media to your local PC hard drive directory c:\wse26_images as described in the "Downloading Workplace Services Express 2.6 images (production version)" section.

To assemble the downloaded product images, follow these steps:

1. Extract each .tar file using WinZip or equivalent software (see Figure 9).
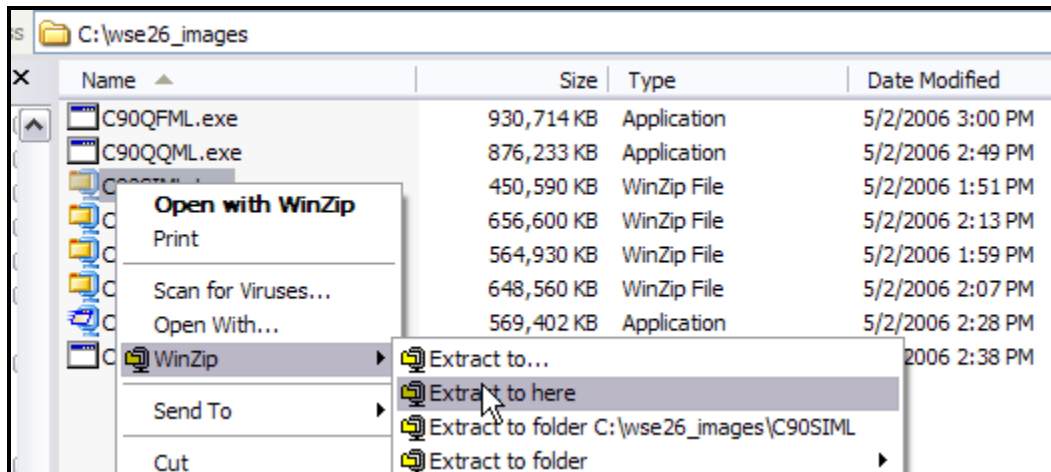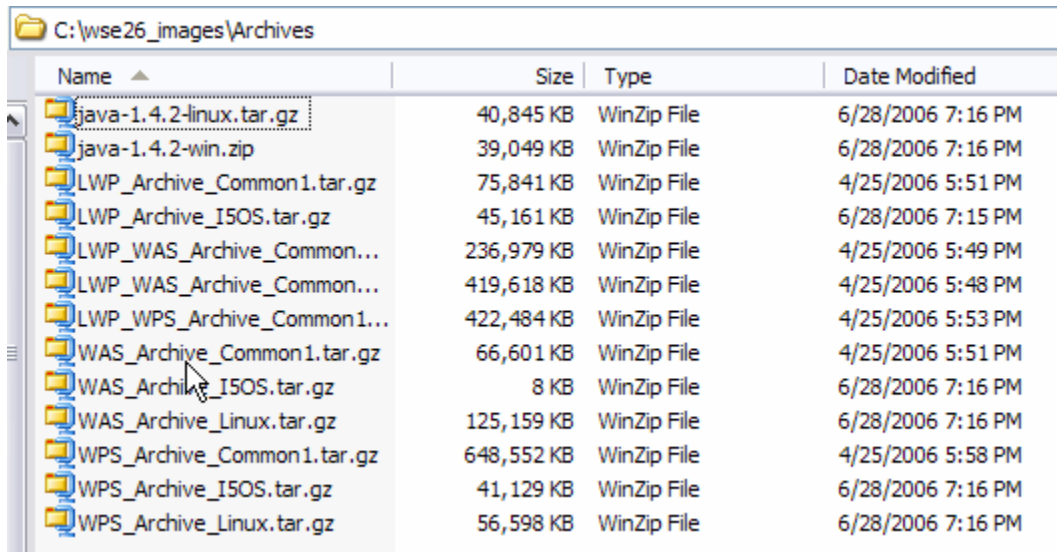
Figure 9. Extracting .tar files using WinZip software
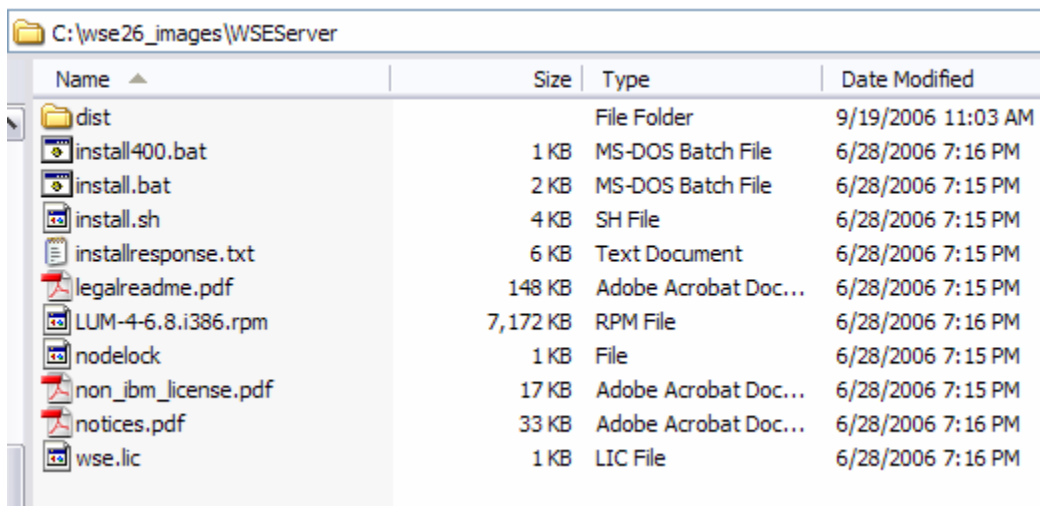
2. The directories Archives and WSEserver are created. Figure 10 shows the Archives directory after extracting the Workplace Services Express installation images.

Name ▲	Size	Type	Date Modified
C:\wse26_images\Archives			
java-1.4.2-linux.tar.gz	40,845 KB	WinZip File	6/28/2006 7:16 PM
java-1.4.2-win.zip	39,049 KB	WinZip File	6/28/2006 7:16 PM
LWP_Archive_Common1.tar.gz	75,841 KB	WinZip File	4/25/2006 5:51 PM
LWP_Archive_I5OS.tar.gz	45,161 KB	WinZip File	6/28/2006 7:15 PM
LWP_WAS_Archive_Common...	236,979 KB	WinZip File	4/25/2006 5:49 PM
LWP_WAS_Archive_Common...	419,618 KB	WinZip File	4/25/2006 5:48 PM
LWP_WPS_Archive_Common1...	422,484 KB	WinZip File	4/25/2006 5:53 PM
WAS_Archive_Common1.tar.gz	66,601 KB	WinZip File	4/25/2006 5:51 PM
WAS_Archive_I5OS.tar.gz	8 KB	WinZip File	6/28/2006 7:16 PM
WAS_Archive_Linux.tar.gz	125,159 KB	WinZip File	6/28/2006 7:16 PM
WPS_Archive_Common1.tar.gz	648,552 KB	WinZip File	4/25/2006 5:58 PM
WPS_Archive_I5OS.tar.gz	41,129 KB	WinZip File	6/28/2006 7:16 PM
WPS_Archive_Linux.tar.gz	56,598 KB	WinZip File	6/28/2006 7:16 PM

Figure 10. Archives directory

Figure 11 shows the WSEServer directory after extracting the Workplace Services Express installation images.

Name ▲	Size	Type	Date Modified
C:\wse26_images\WSEServer			
dist		File Folder	9/19/2006 11:03 AM
install400.bat	1 KB	MS-DOS Batch File	6/28/2006 7:16 PM
install.bat	2 KB	MS-DOS Batch File	6/28/2006 7:15 PM
install.sh	4 KB	SH File	6/28/2006 7:15 PM
installresponse.txt	6 KB	Text Document	6/28/2006 7:15 PM
legalreadme.pdf	148 KB	Adobe Acrobat Doc...	6/28/2006 7:15 PM
LUM-4-6.8.i386.rpm	7,172 KB	RPM File	6/28/2006 7:16 PM
nodelock	1 KB	File	6/28/2006 7:15 PM
non_ibm_license.pdf	17 KB	Adobe Acrobat Doc...	6/28/2006 7:15 PM
notices.pdf	33 KB	Adobe Acrobat Doc...	6/28/2006 7:16 PM
wse.lic	1 KB	LIC File	6/28/2006 7:16 PM

Figure 11. WSEServer directory

Configuring TCP/IP

This section describes the basic TCP/IP configuration required before you install and configure Workplace Services Express on your System i model. Perform the following steps:

1. Assign a dedicated IP address to your Workplace Services Express instance.
2. Activate the new IP address on your System i model by adding a new TCP/IP interface (see Figure 12):
   a. From an i5/OS command line, enter the `CFGTCP` command and select option **1** (Work with TCP/IP Interfaces).
   b. Specify **1** to add, fill in the IP address, and press Enter.
   c. Fill in the line description name and press Enter.
   d. Enter **9** by the new entry to activate the new IP address.

```
                    Work with TCP/IP Interfaces
                                                                    S
Type options, press Enter.
  1=Add    2=Change    4=Remove    5=Display    9=Start    10=End

     Internet           Subnet            Interface
Opt  Address            Mask              Status
 __  _____
 __  10.10.10.2         255.255.255.0     Active
 __  127.0.0.1          255.0.0.0         Active
```

Figure 12. Work with TCP/IP Interfaces screen

3. Configure the IP address (step 2 above) as a static IP address with an entry in the Domain Name Server (DNS) and an entry in the System i host table.

If you do not have a DNS, add this entry to your PC host table. The host name assigned to this IP address is the host name of your Workplace Services Express instance, and it is referred to as *<wsehost>* in this document.

Note: Specify the fully qualified host name for your *<wsehost>* before the non-fully qualified name (see Figure 13). The host and domain names in the host table and DNS are case-sensitive.

```
                 Work with TCP/IP Host Table Entries

Type options, press Enter.
  1=Add    2=Change    4=Remove    5=Display    7=Rename

     Internet           Host
Opt  Address            Name
 _   _____
 _   10.10.10.2         WCSO1.RCHLAND.IBM.COM
                        WCSO1
 _   127.0.0.1          LOOPBACK
                        LOCALHOST
```

Figure 13. Work with TCP/IP Host Table Entries screen

4. Verify your system's local host name and domain name configuration (**CFGTCP** option 12) (see Figure 14).

```
                    Change TCP/IP Domain (CHGTCPDMN)

Type choices, press Enter.

Host name  . . . . . . . . . . .    'ITCEBIZ1'

Domain name  . . . . . . . . . .    'RCHLAND.IBM.COM'


Domain search list . . . . . . .    *DFT


Host name search priority  . . .    *remote       *REMOTE, *LOCAL, *SAME
Domain name server:
   Internet address . . . . . . .   10.10.10.5
```

Figure 14. Change TCP/IP Domain (CHGTCPDMN) screen

Note: Specify **Host name search priority *LOCAL** if you do not have a DNS server.

5. Verify that you can ping the *<wsehost>* by fully qualified and non-fully qualified names from both your System i model and your PC. (This is the PC client that you will use to install the Workplace Services Express software.) For verification, enter the following commands:
   ping <wsehost>.<domain> (for example, ping wcs01.rchland.ibm.com)
   ping <wsehost> (for example, ping wse01)
6. Verify that you can ping your System i host name from the PC client that you will use to perform the installation and from the local System i model.
7. Verify your local database WRKRDBDIRE configuration (see Figure 15).

```
               Work with Relational Database Directory Entries

 Position to  . . . . . .   _____

 Type options, press Enter.
   1=Add    2=Change    4=Remove    5=Display details    6=Print details

                           Remote
 Option   Entry            Location                Text
   _
   _      ITCEBIZ1         *LOCAL                  Entry added by system
```

Figure 15. Work with Relational Database Directory Entries screen, WRKRDBDIRE

8. If it is active, stop the IBM i5/OS SMTP server by entering the ENDTCPSVR *SMTP command.
9. Make sure SMTP does not start (by default) during an i5/OS IPL by entering the CHGSMTPA AUTOSTART(*NO) command.

Note: If the i5/OS SMTP server must be active for existing applications, it needs to bind to a specific IP address.

Setting the time on the i5/OS operating environment

Before installing the IBM Workplace Services Express software, ensure that the Universal Time
Coordinated (UTC) offset system value is set correctly by running the following command from an
i5/OS command line (example below is for Central Standard Time):
`CHGSYSVAL SYSVAL(QTIMZON) VALUE(QN0600CST)`

For a complete list of time zone values, refer to the "time zone" topic at the System i Information Center.
For the Web site, see the "Resources" section.

Obtaining group PTFs and single PTFs

To order or download System i platform program temporary fixes (PTFs), see the Web sites listed in the
"Resources" section of this lab.

Installing software prerequisites and PTF groups

Ensure the installation of all products and PTF prerequisites before installing Workplace Services Express.

1. Install or verify the following Licensed Programs by issuing the `GO LICPGM` command and
   selecting option **10**:
   - 5722SS1 i5/OS V5R4
   - 5722JV1 (Option *BASE) IBM Developer Kit for Java
   - 5722JV1 (Option 5) Java Developer Kit (Version 1.3)
   - 5722JV1 (Option 6) Java Developer Kit (Version 1.4)
   - 5722SS1 (Option 12) Host Servers
   - 5722SS1 (Option 30) QShell Interpreter
   - 5722SS1 (Option 33) Portable Application Solution Environment (PASE)
   - 5722SS1 (Option 34) Digital Certificate Manager
   - 5722SS1 (Option 43) Additional Fonts
   - 5722DG1 IBM HTTP Server for iSeries
   - 5722TC1 TCP/IP Utilities
   - 5722JC1 Toolbox for Java
   - 5722AC3 Crypto Access Provider 128-bit (i5/OS V5R3 *only*)
2. Install or verify the following PTFs
- i5/OS V5R4:
   - PTF group SF99540 (Cumulative PTF package) level 6066 or higher
- I5/OS V5R3
   - PTF group SF99530 (Cumulative PTF package) level 6045 or higher

Note: For the latest PTF information, see
ibm.com/servers/eserver/iseries/software/workplace/support.html

Preparing the LDAP directory

Verify that your LDAP server is running on i5/OS V5R3 or later.

Note: This step is not required if you use the LDAP default suffix on the LDAP server running on the System i model. Sometimes, there might be a need to separate LDAP environments, such as during production and development or testing. Creating a separate LDAP suffix allows you to separate the environments. Multiple Workplace Services Express instances can run on the same System i model, sharing the same LDAP suffix or using their own suffix. Skip this step if you do not have a need for a separate LDAP suffix to secure you Workplace Services Express instance.

To verify the i5/OS version, perform the following steps:
1. Add a new suffix to the LDAP directory:
   a. Start the iSeries Navigator management tool for the i5/OS operating environment.
   b. Expand the node by selecting **iSeries -> Network -> Servers -> TCP/IP**.
   c. Right-click **IBM Directory Server** and from the context menu, select **Properties**.
   d. Select the **Database/Suffixes** tab (see Figure 16).
   e. In the **New suffix** field, type dc=<*wsehost*>, dc=<dom1>, dc=<dom2>, … dc=<domx>, dc=com (where <*wsehost*> is the name of the host associated with the IP address you are using to configure Workplace). Qualifiers for your domain are: <dom1>, <dom2>, …. <domx>.
      Note: Make sure to enter a space after each comma. For example, if the fully qualified host name is itcebiz4a.rchland.ibm.com, you need to enter dc=itcebiz4a, dc=rchland, dc=ibm, dc=com in the **New suffix** field (see Figure 16).
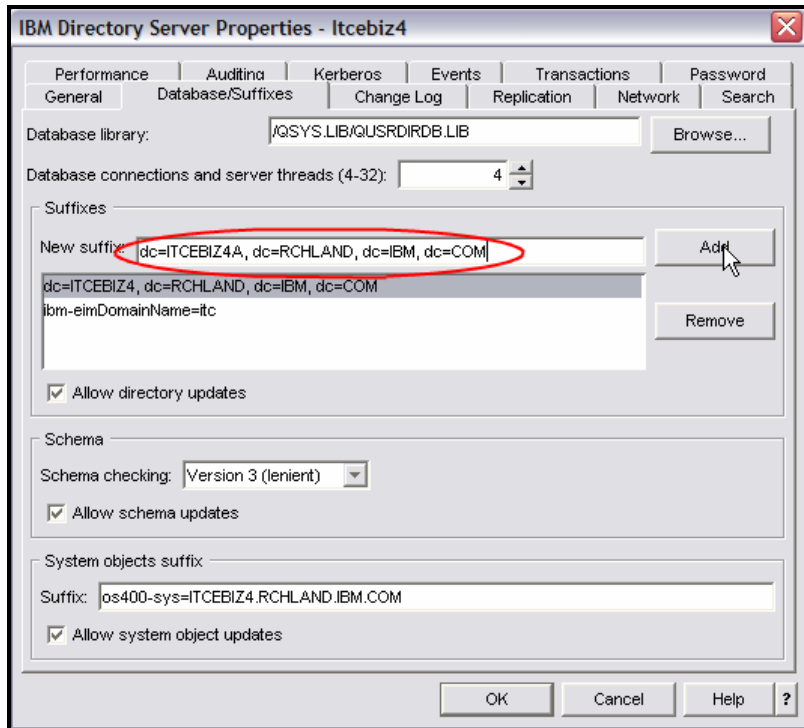   f. Click **Add -> OK**.

Figure 16. IBM Directory Server Properties panel

2. Copy the following text to a PC text file and name it PortalUsers_<*your_wsehost*>.ldif (for example, PortalUsers_ITCEBIZ4.ldif).

```
Version: 1
# NOTE: you must edit this file before importing it and replace all # occurrences of
the default suffix dc=yourco,dc=com with the suffix # that your LDAP server is
configured for.
dn:dc=itcebiz4a,dc=rchland,dc=ibm,dc=com
objectclass: domain
objectclass: top
# Add lines according to this scheme that correspond to your suffix
dc: dc=itcebiz4a,dc=rchland,dc=ibm,dc=com
dc: itcebiz4a

dn: cn=users,dc=itcebiz4a,dc=rchland,dc=ibm,dc=com
objectclass: container
objectclass: top
cn: users

dn: cn=groups,dc=itcebiz4a,dc=rchland,dc=ibm,dc=com
objectclass: top
objectclass: container
cn: groups

dn: uid=wpsadmin,cn=users,dc=itcebiz4a,dc=rchland,dc=ibm,dc=com
objectclass: organizationalPerson
objectclass: person
objectclass: top
objectclass: inetOrgPerson
uid: wpsadmin
userpassword: wpsadmin
sn: wpsadmin
cn: wpsadmin
mail: wpsadmin@itcebiz4a.rchland.ibm.com

dn: cn=wpsadmins,cn=groups,dc=itcebiz4a,dc=rchland,dc=ibm,dc=com
objectclass: groupOfUniqueNames
objectclass: top
uniquemember:uid=wpsadmin,cn=users,dc=itcebiz4a,dc=rchland,dc=ibm,dc=com
cn: wpsadmins
```

3. Modify the LDAP Data Interchange Format (LDIF) file to configure your LDAP suffix:
    a. Copy the file PortalUsers_<*your_wsehost*>.ldif file to an integrated file system (IFS) directory on your System i model (referred to as <*your_directory*> in the following steps).
    b. Using a text editor (for example, Microsoft® Notepad), modify the PortalUsers_<*your_wsehost*>.ldif file as follows:
        i.   Find and replace all occurrences of dc=itcebiz4a,dc=rchland,dc=ibm,dc=com with the new suffix you created above.
        ii. Find and replace all occurrences of itcebiz4a with the <*wsehost*> host name.
        iii. Change the user password for wpsadmin to any password of your choice.
        iv. Be sure not to change any other lines in this file.
        v.   Save the file with the same name.
        vi. Close the text editor.

    Note: Verify that your text editor has not added an extra extension to the file (for example, .txt). The file must have the .ldif extension.

4. Stop the **IBM Directory Server**:
    a. From iSeries Navigator, click **Network -> Servers -> TCP/IP**.

> b. Right-click **IBM Directory Server -> Stop**.

5. Import the PortalUsers_*<your_wsehost>*.ldif file:
   a. From iSeries Navigator, right-click **IBM Directory Server -> Tools -> Import File**.
   b. Click **Browse** and select: **/<your_directory>/PortalUsers_*<your_wsehost>*.ldif**.
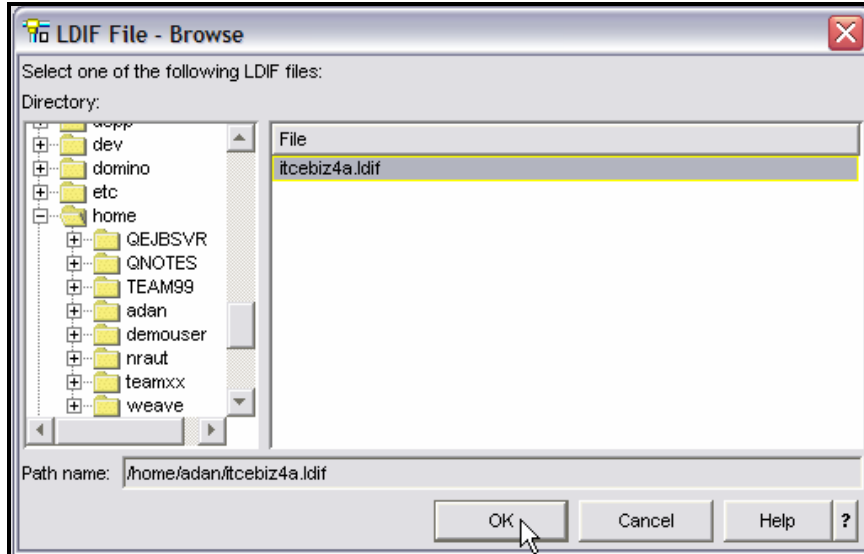   c. Click **OK** twice (see Figure 17).

Figure 17. Import PortalUsers_<your_wsehost>.ldif

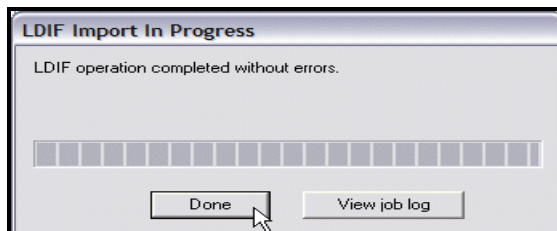> d. When the import operation is complete, click **Done** (see Figure 18).

Figure 18. LDIF Import in Progress window

6. Start the IBM Directory Server:
   a. From iSeries Navigator, click **Network -> Servers -> TCP/IP**.
   b. Right-click **IBM Directory Server -> Start**.

Installing WebSphere Application Server

The Workplace Services Express 2.6 package includes a streamlined installation program for WebSphere Application Server and PTF prerequisites. The installation program installs the required WebSphere product options and PTFs. The recommendation is that you use the WebSphere Application Server installation program provided with the Workplace Services Express 2.6 package even if some of the prerequisite products and PTFs are already installed. The installation program detects the prerequisite WebSphere options already installed on your system and it installs only what is required but missing.

Note the following aspects:
- The WebSphere Application Server installation program included with Workplace Services Express 2.6 installs the following WebSphere product options if not already installed:
    - 5733WS5 WebSphere Application Server V5.0
    - 5733WS5 WebSphere Application Server V5.0 Client development and run time
    - 5733WS5 WebSphere Application Server V5.0 Application server run time
    - 5733WS5 WebSphere Application Server V5.0 Samples
    - 5733WS5 WebSphere Application Server V5.0 Network Deployment
    - 5733WS5 WebSphere Application Server V5.0 Enterprise Enablement
    - 5733WS5 WebSphere Application Server Extensions

- 5733WS5 WebSphere Application Server V5.0 Network Deployment is not used by Workplace Services Express; it is installed so that the same installation program can be used to install WebSphere Application Server product prerequisites for Workplace Collaboration Services 2.6.
- The WebSphere Application Server installation program included with Workplace Services Express 2.6 installs the following PTF groups on i5/OS V5R4 if not already installed:
    - SF99504 DB2 UDB for iSeries level 2
    - SF99317 WebSphere Application Server V5.0 (Base Edition) level 2
    - SF99318 WebSphere Application Server Network Deployment V5.0 level 2
    - SF99321 WebSphere Portal Express/Express Plus Service Pack 1
    - SF99291 Java level 2
    - SF99114 IBM HTTP Server for i5/OS level 3
    - SF99296 WebSphere MQ for iSeries V5 R3 level 3 (only if WebSphere MQ is installed on the system)
- The WebSphere Application Server installation program included with Workplace Services Express 2.6 installs the following PTF groups on i5/OS V5R3 if not already installed:
    - SF99503 DB2 UDB for iSeries level 9
    - SF99287 WebSphere Application Server V5.0 (Base Edition) level 18
    - SF99282 WebSphere Portal Express/Express Plus Service Pack level 4
    - SF99288 WebSphere Application Server Network Deployment V5.0 level 13
    - SF99269 Java level 10
    - SF99099 IBM HTTP Server for i5/OS level 9
    - SF99295 WebSphere MQ for iSeries V5R3 level 8 (only if WebSphere MQ is installed on the system)
- When the System i operating system is migrated to i5/OS V5R4 from previous releases, the previous-release PTF groups remain on the system. Do not uninstall the previous-release PTF groups regardless of the status.
- Perform the following steps to install the WebSphere and PTF group prerequisites using the installation program included in the Workplace Services Express 2.6 package:

1. Disable the personal firewall on the PC from which you will be performing the installation. Verify that there are no filters or firewalls between the PC and the System i.
2. Verify that you can ping the System i model by host name from the PC from which you will be performing the installation.
3. Sign on to the System i model with a user profile with *IOSYSCFG, *ALLOBJ, and *JOBCTL special authorities. Do not use QSECOFR.
4. On an i5/OS command line, enter the following commands to end your WebSphere Application Server and HTTP Server subsystems:
   ```
   ENDSBS SBS(QEJBAS5)
   ENDSBS SBS(QHTTPSVR)
   ```
5. Start the following subsystems by issuing the i5/OS Start Subsystems (STRSBS) commands:
   ```
   STRSBS SBSD(QSYSWRK)
   STRSBS SBSD(QUSRWRK)
   STRSBS SBSD(QSERVER)
   ```
6. Start the Workplace Services Express installation program:
   a. Open a DOS command prompt.
   b. Change to the directory containing the installation files to cd c:\wse26_images.
   c. Start the installation program by entering the following command:
      ```
      install400.bat
      ```
      Note: You must use the WebSphere Application Server installation program provided with Workplace Services Express even if you already have WebSphere Application Server installed on your system. The installation program provided with Workplace Services Express applies fixes and adds functions needed for your deployment.
7. A sign-on window prompts you to enter your system, user ID, and password. Use a user profile with *IOSYSCFG, *ALLOBJ and *JOBCTL special authorities. Do not use QSECOFR.
   a. Type the sign-on information and click **OK** (see Figure 19).
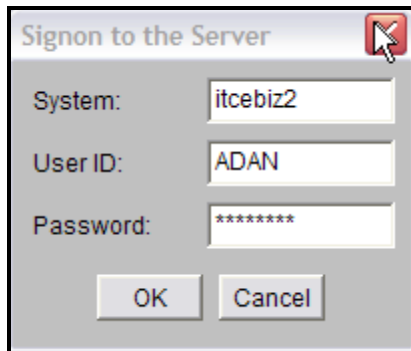
Figure 19. Sign on to System i

8. Select the language for the installation and click **OK** (see Figure 20).
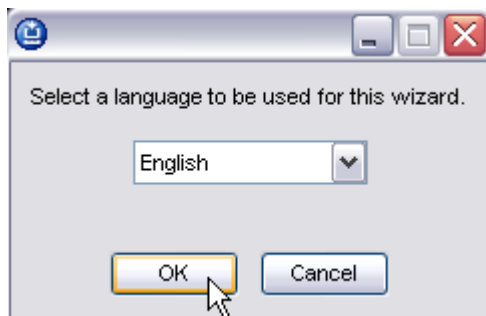
Figure 20. Select the installation language

9. A welcome panel is displayed. Click **Next** (see Figure 21).
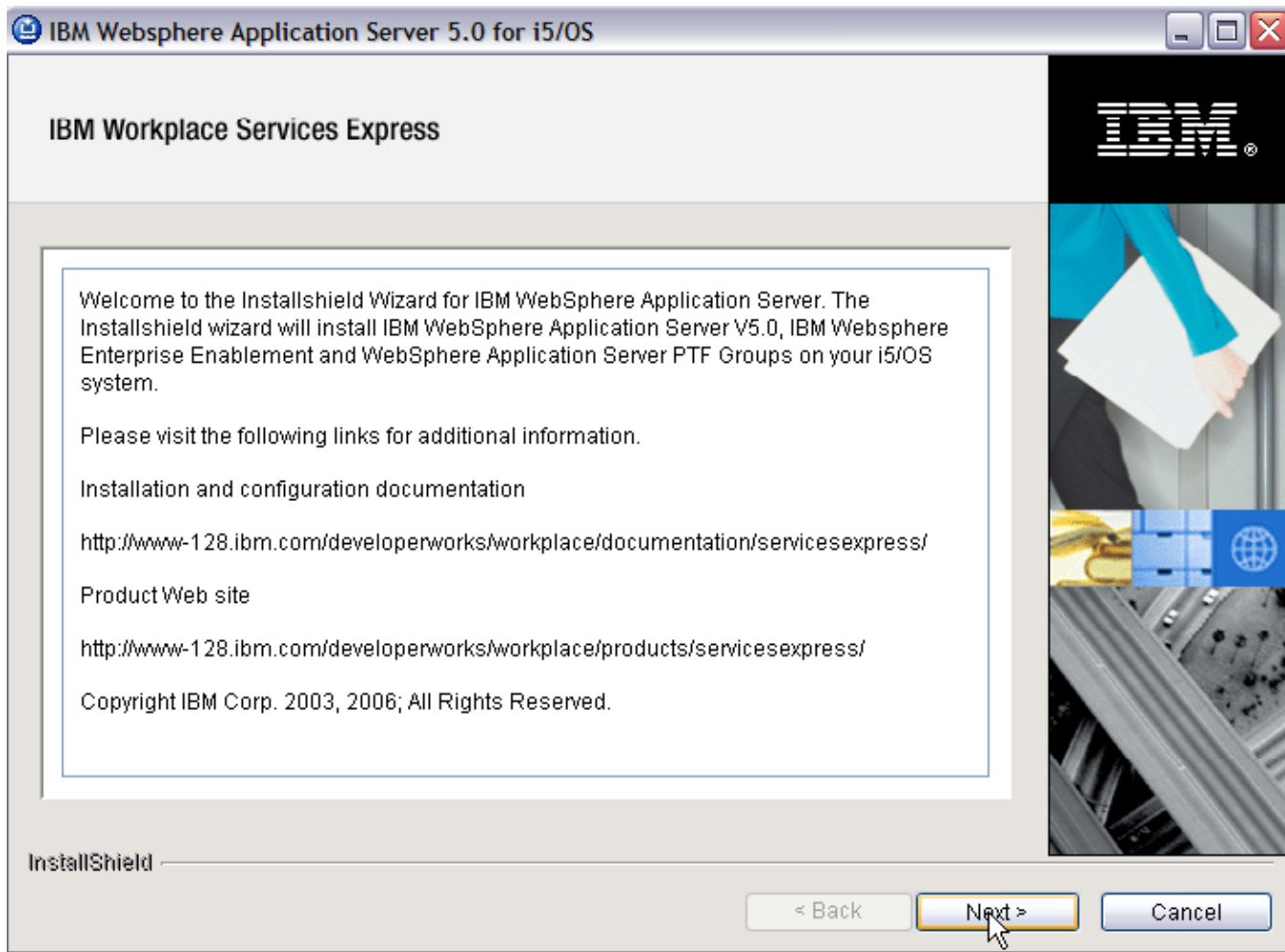
Figure 21. InstallShield wizard for WebSphere Application Server wizard welcome window

10. Read the license information on the next window and select **I accept the terms of the license agreement**. Click **Next** (see Figure 22).
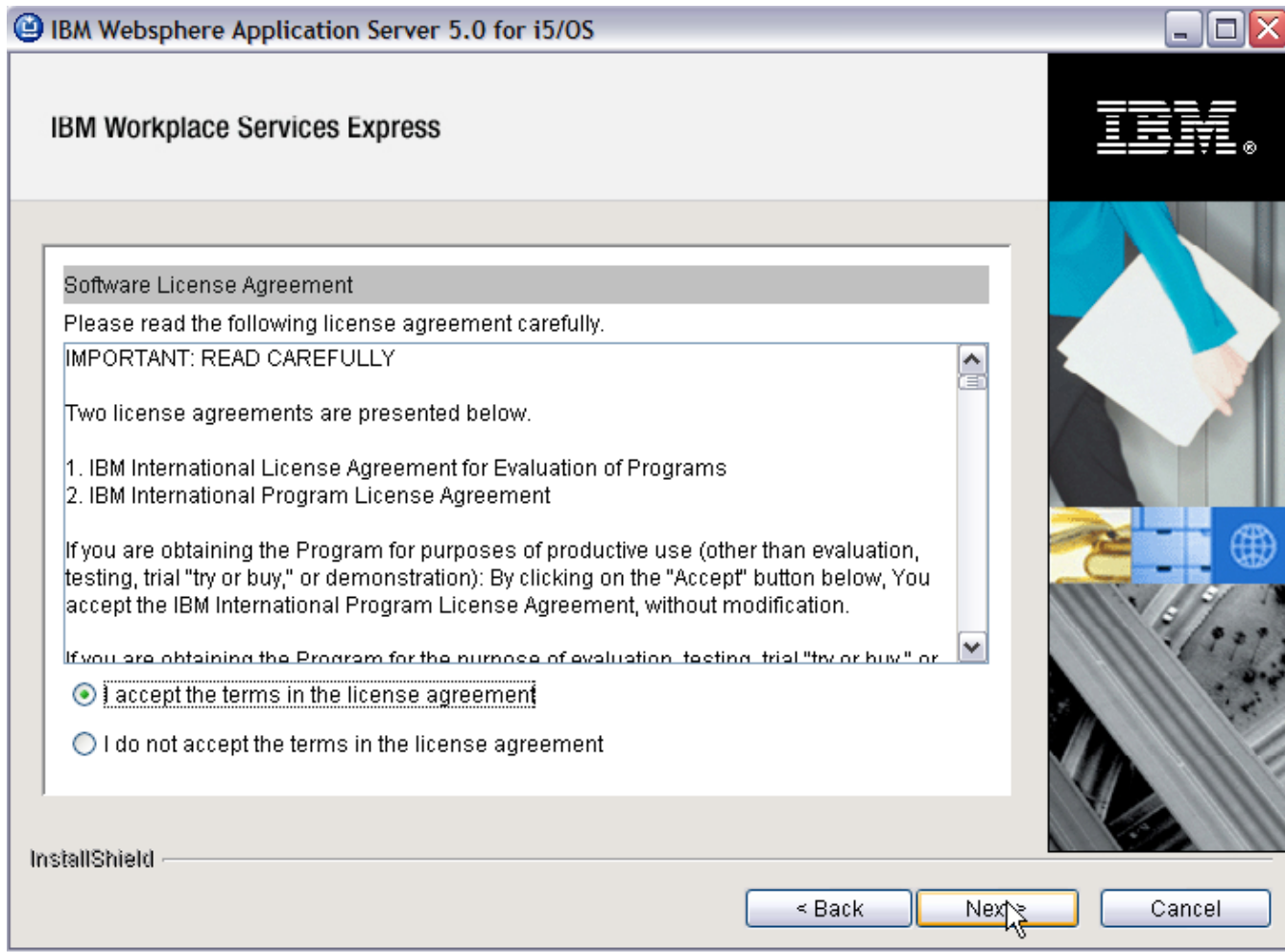
Figure 22. License agreement for WebSphere Application Server window

11. Review the information on the summary window and click **Next** to begin installation of WebSphere Application Server (see Figure 23).
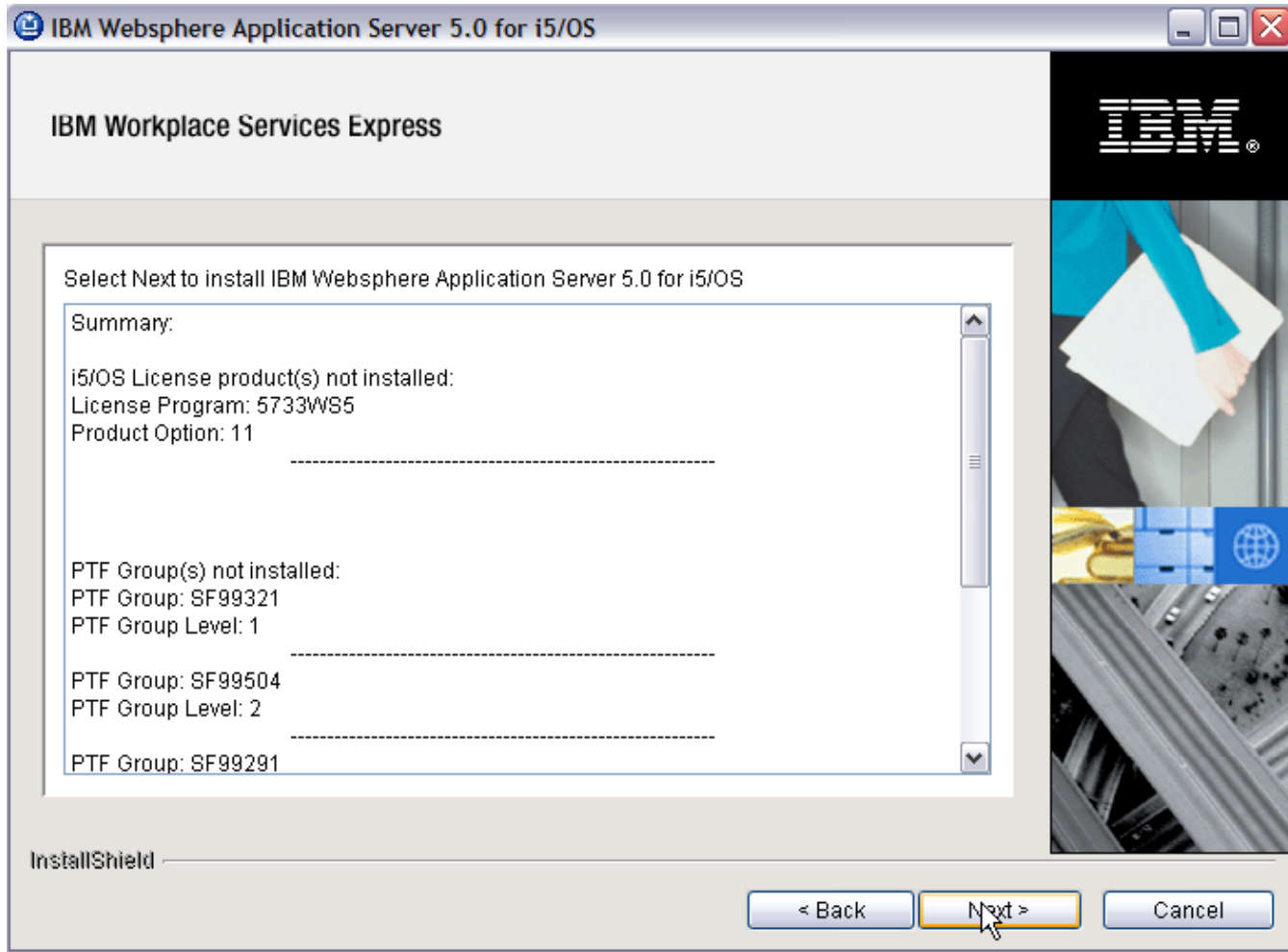
Figure 23: WebSphere Application Server and PTFs – summary window

The installation of WebSphere prerequisite products and PTFs starts (see Figure 24).
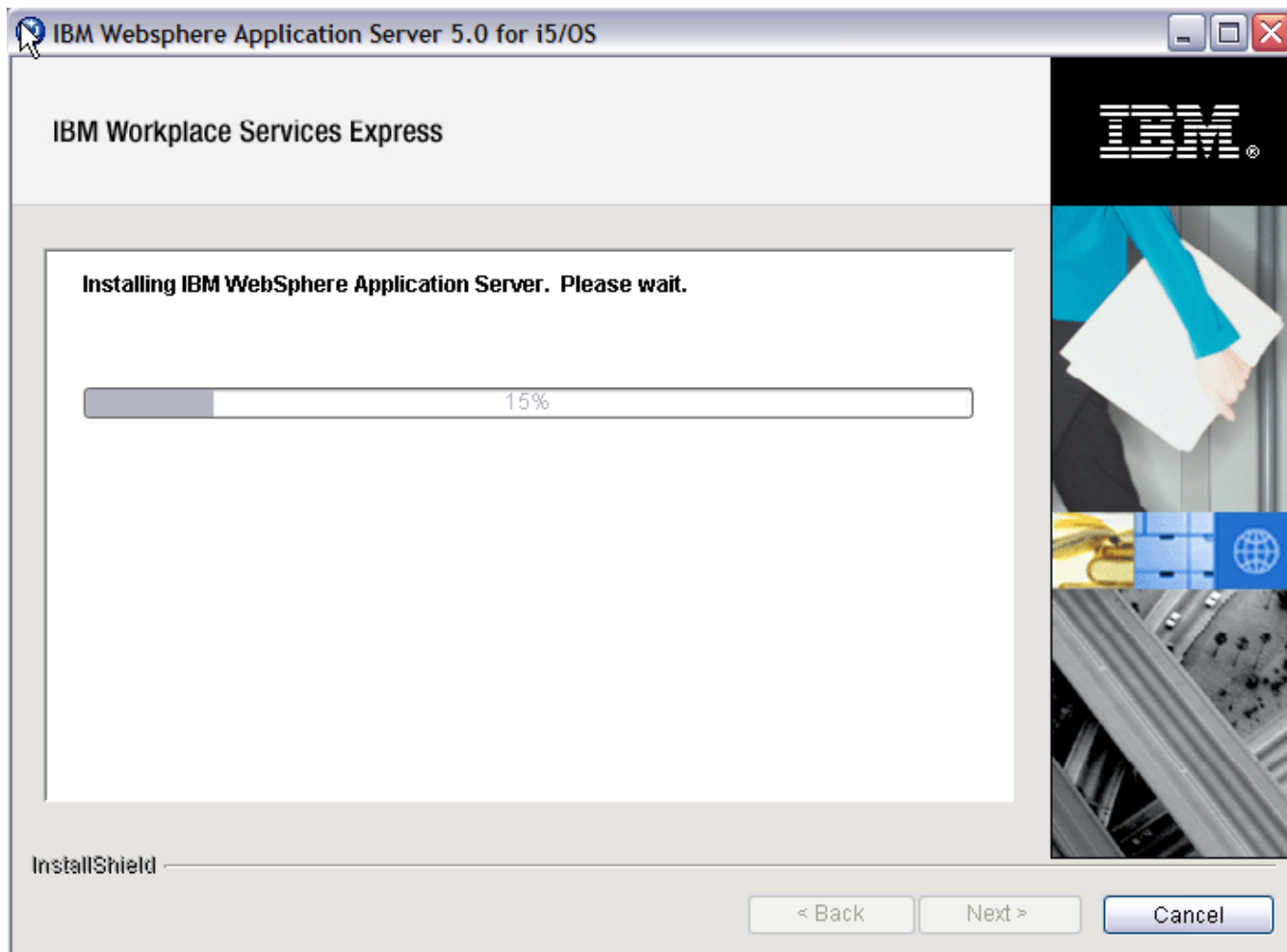
Figure 24. Installing WebSphere Application Server progress bar

12. When the installation program has been completed, a confirmation message appears. Click
Finish to exit the installation program (see Figure 25).
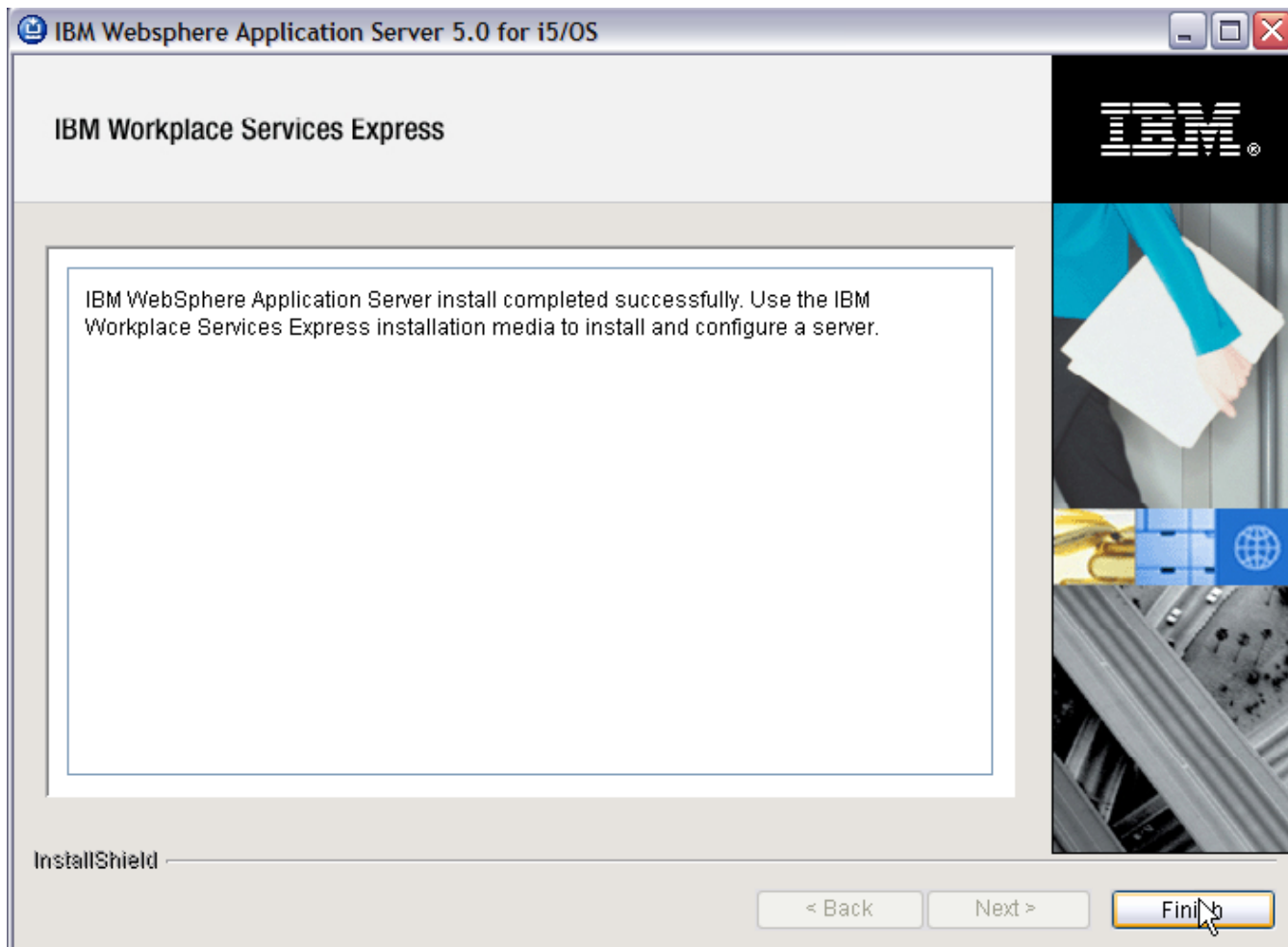
Figure 25. WebSphere Application Server installation completed

In some cases, an IPL is required to apply delayed PTFs (see Figure 26). Before proceeding with the Workplace Services Express installation, perform an IPL of the system and verify that the prerequisite PTF groups are applied at the required level.
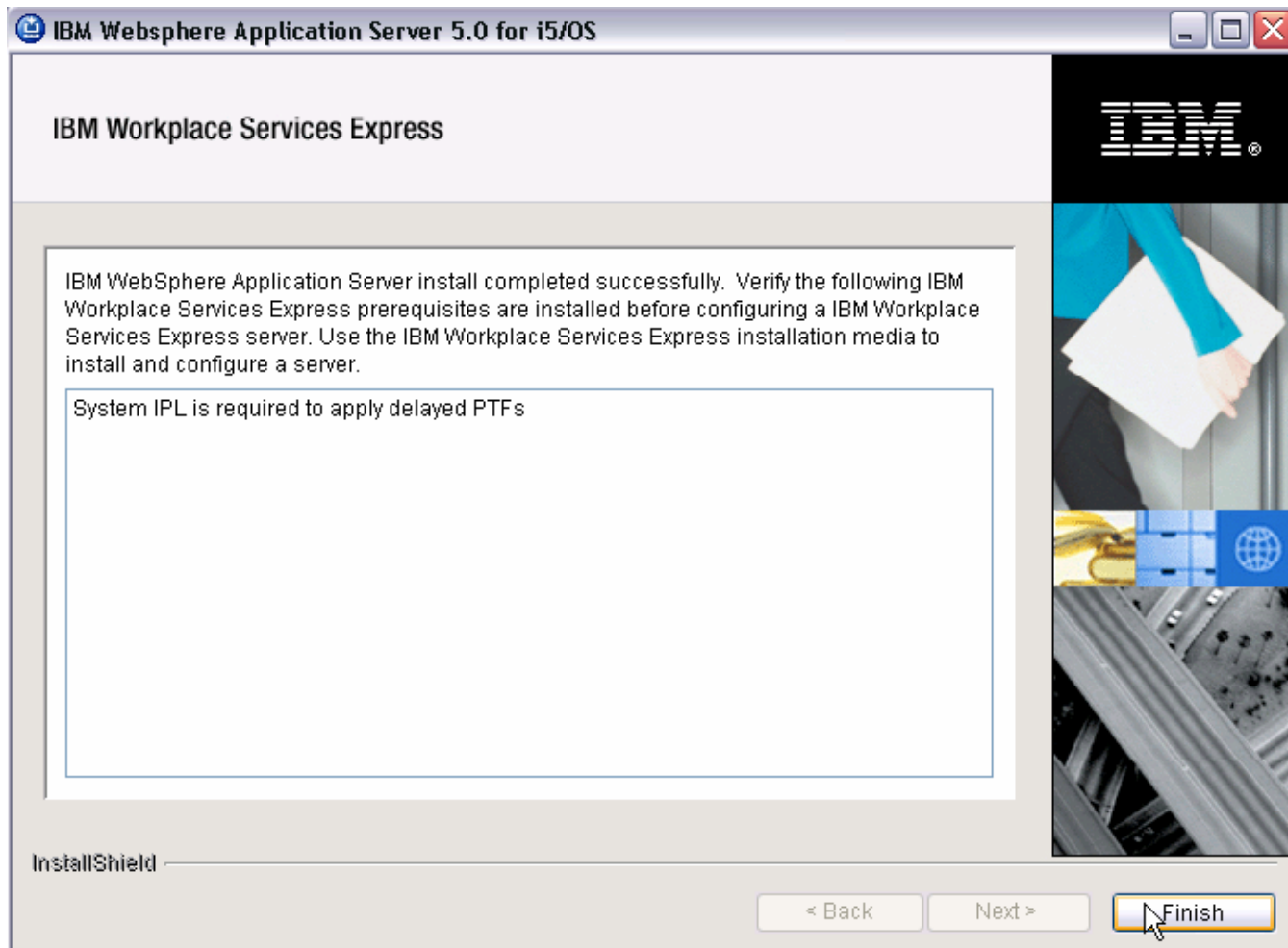
Figure 26. WebSphere Application Server completion window - IPL required to apply delayed PTFs

Verifying the WebSphere installation

At the end of the installation, verify that the WebSphere prerequisite products and PTF are installed:

1. From an i5/OS command entry session, enter `GO LICPGM` and verify that the following WebSphere products are installed on your system:

Licensed Program	Product option	Description
5733WS5	*BASE	WebSphere Application Server V5.0
5733WS5	1	WebSphere Application Server V5.0 Client development and run time
5733WS5	2	WebSphere Application Server V5.0 Application server run time
5733WS5	3	WebSphere Application Server V5.0 Samples
5733WS5	5	WebSphere Application Server V5.0 Network Deployment (not required for Workplace Services Express)
5733WS5	10	WebSphere Application Server V5.0 Enterprise Enablement
5733WS5	11	WebSphere Application Server Extensions

2. From an i5/OS command entry session, enter `WRKPTFGRP` and verify that the following group PTFs are installed on your system:

i5/OS V5R4:

| PTF group	Description	Minimum level
SF99504	DB2 UDB for iSeries	2
SF99317	WebSphere Application ServerV5.0 (Base Edition)	2
SF99318	WebSphere Application Server Network Deployment V5.0	2
SF99321	WebSphere Portal Express/Expess Plus Service Pack	1
SF99291	Java	2
SF99114	IBM HTTP Server for I5/OS	3
SF99296	WebSphere MQ for iSeries V5R3 (only if WebSphere MQ is installed on the system)	3

i5/OS V5R3:

PTF group	Description	Minimum level
SF99503	DB2 UDB for iSeries	9
SF99287	WebSphere Application Server V5.0 (Base Edition)	18
SF99288	WebSphere Application Server Network Deployment V5.0	13
SF99282	WebSphere Portal Express/Express Plus Service Pack	4
SF99269	Java	10
SF99099	IBM HTTP Server for i5/OS	9
SF99296	WebSphere MQ for iSeries V5R3 (only if WebSphere MQ is installed on the system)	8

3. Check the contents of the following log files to verify the successful WebSphere and PTF installation:
    *   /tmp/InstallShield/WAS50/wasinstalllog.txt
    *   /tmp/InstallShield/WAS50/wasproductInstalllog.txt

4. Change the WebSphere Application Server V5.0 Application Server runtime usage limit by running the following i5/OS command:
   ```
   CHGLICINF PRDID(5733WS5) FEATURE(5050) USGLMT(*NOMAX)
   ```

Installing Workplace Services Express 2.6 production version (remote installation)

The instructions in this section assume that you are remotely installing Workplace Services Express from a Microsoft® Windows® operating system-based workstation connected to your System i model through a local area network (LAN). When you run the installation program from the Windows command prompt, you are prompted to sign on to your i5/OS operating environment.

Installing from a Windows workstation using e-images

After assembling the e-images, you can proceed to install Workplace Services Express 2.6 on your System i model. You need a user profile with *IOSYSCFG, *ALLOBJ, and *JOBCTL special authorities. Do not use QSECOFR.

1. Start the following subsystems by issuing the i5/OS Start Subsystems (STRSBS) commands:
   a. `STRSBS SBSD(QSYSWRK)`
   b. `STRSBS SBSD(QUSRWRK)`
   c. `STRSBS SBSD(QSERVER)`

2. Start the host server by issuing the `STRHOSTSVR SERVER(*ALL)` command.
3. Make sure that you can successfully ping the host name of your System i model from the PC you are using to install the Workplace Services Express software.
4. From a DOS session, change the current directory by entering the following command:
   `cd c:\wse26_images\WSEServer`.
5. Run **install400.bat**.
6. Enter the following information:
   System: Your System i host name
   Username: The System i user profile with *IOSYSCFG, *JOBCTL, and *ALLOBJ authorities. Do not use QSECOFR.
   Password: Your password (see Figure 27)
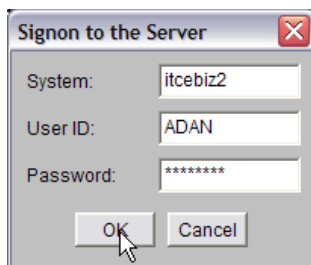
Figure 27. Signon to the Server window

7. Select the language for the InstallShield for Multi Platforms (ISMP) program and click **OK** (see Figure 28).
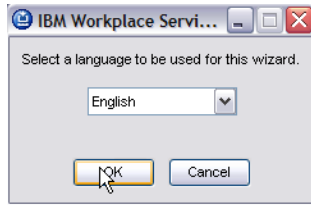
Figure 28. Selecting a language for ISMP

8. To continue the installation, click **Next** (see Figure 29). The ISMP wizard performs prerequisite checking before the installation.
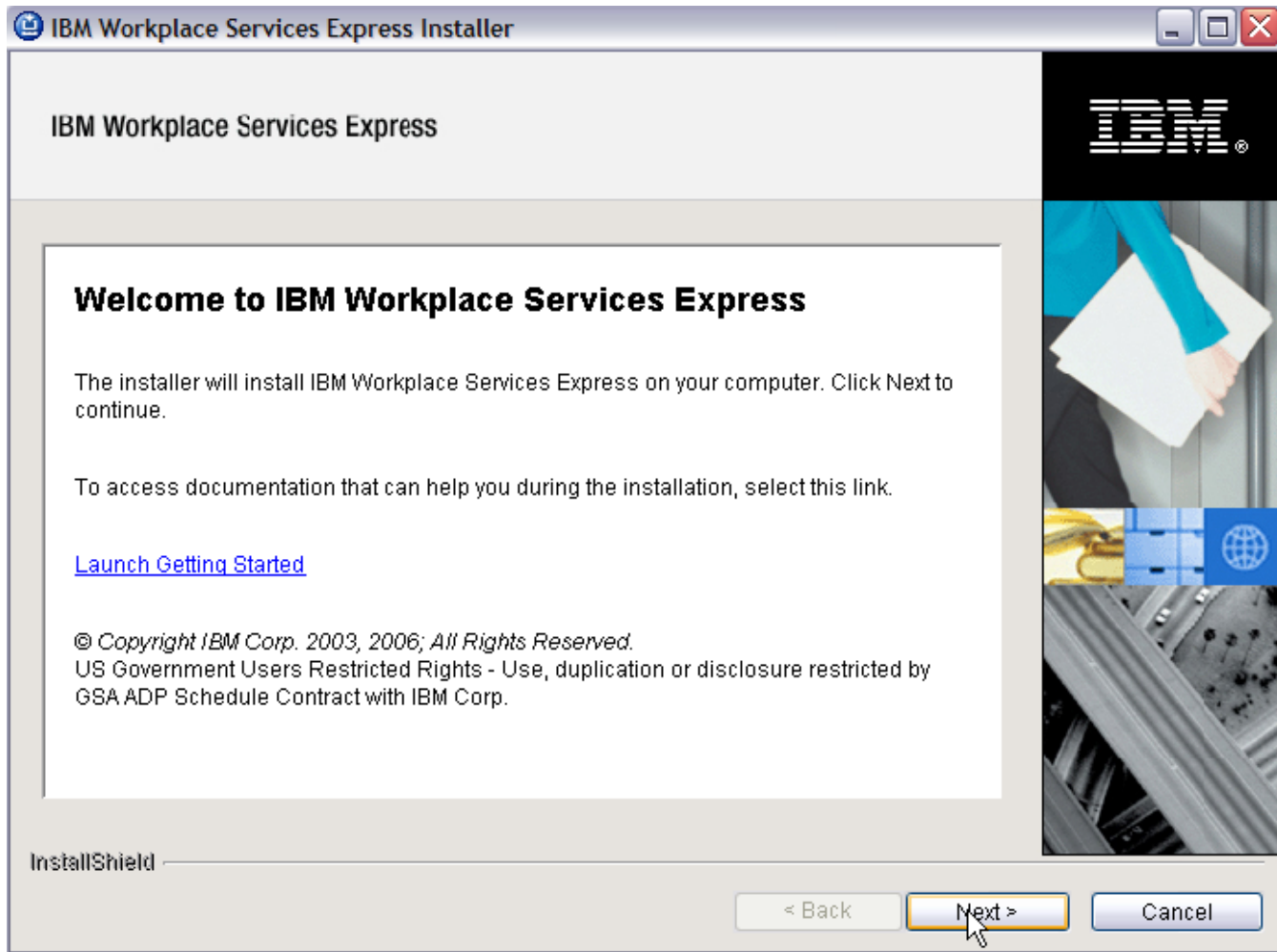
Figure 29. Workplace Services Express Installer

9. Accept the license terms and click **Next** (see Figure 30).
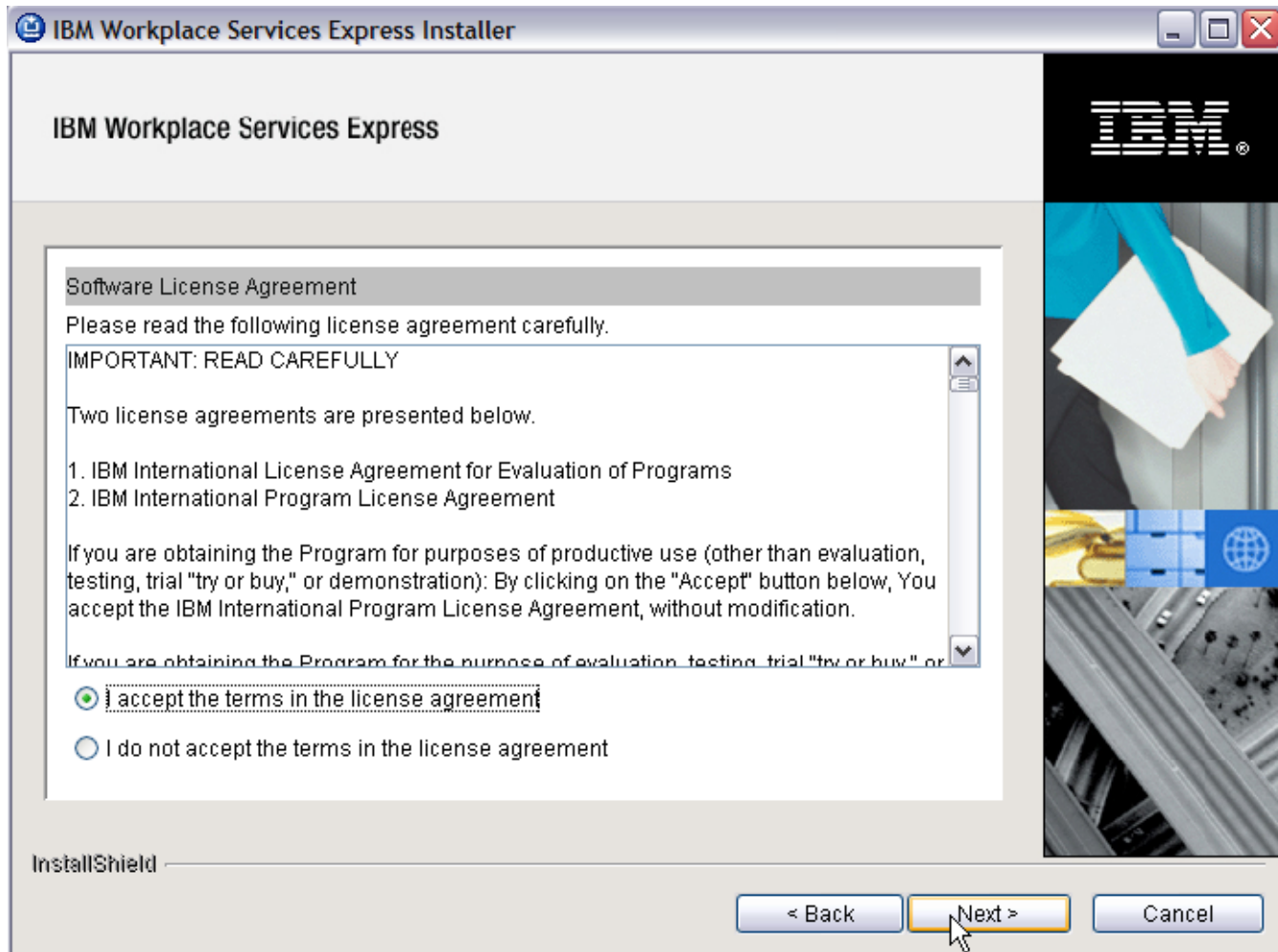
Figure 30. Workplace Services Express Software License Agreement

10. On the Summary page, click **Next**. Notice the installation location of the Workplace Services Express 2.6 code (see Figure 31).
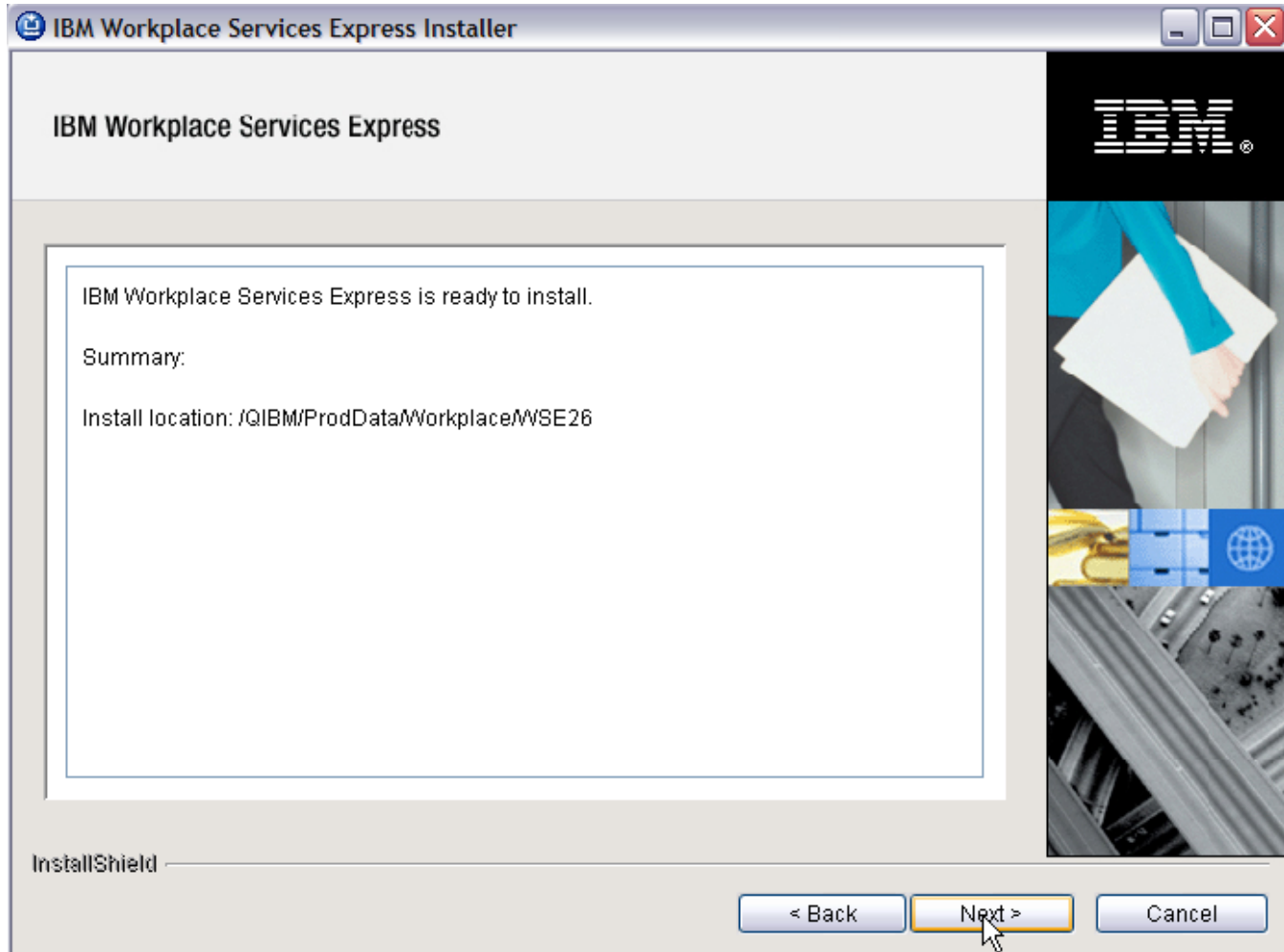
Figure 31. Workplace Services Express installation location

Note: The remote installation of the product files can take approximately 10 to 20 minutes. At this point, a file called wseinstall.lockfile is created in the IFS directory /tmp/InstallShield/wse and is removed after the installation has been completed. If a previous attempt to install the product has not finished successfully, you might see an error message now and need to delete wseinstall.lockfile before you can continue. You can check the wseinstalllog.txt and productInstalllog.txt files for any errors in the same directory.

11. The installation progress bar appears (see Figure 32).
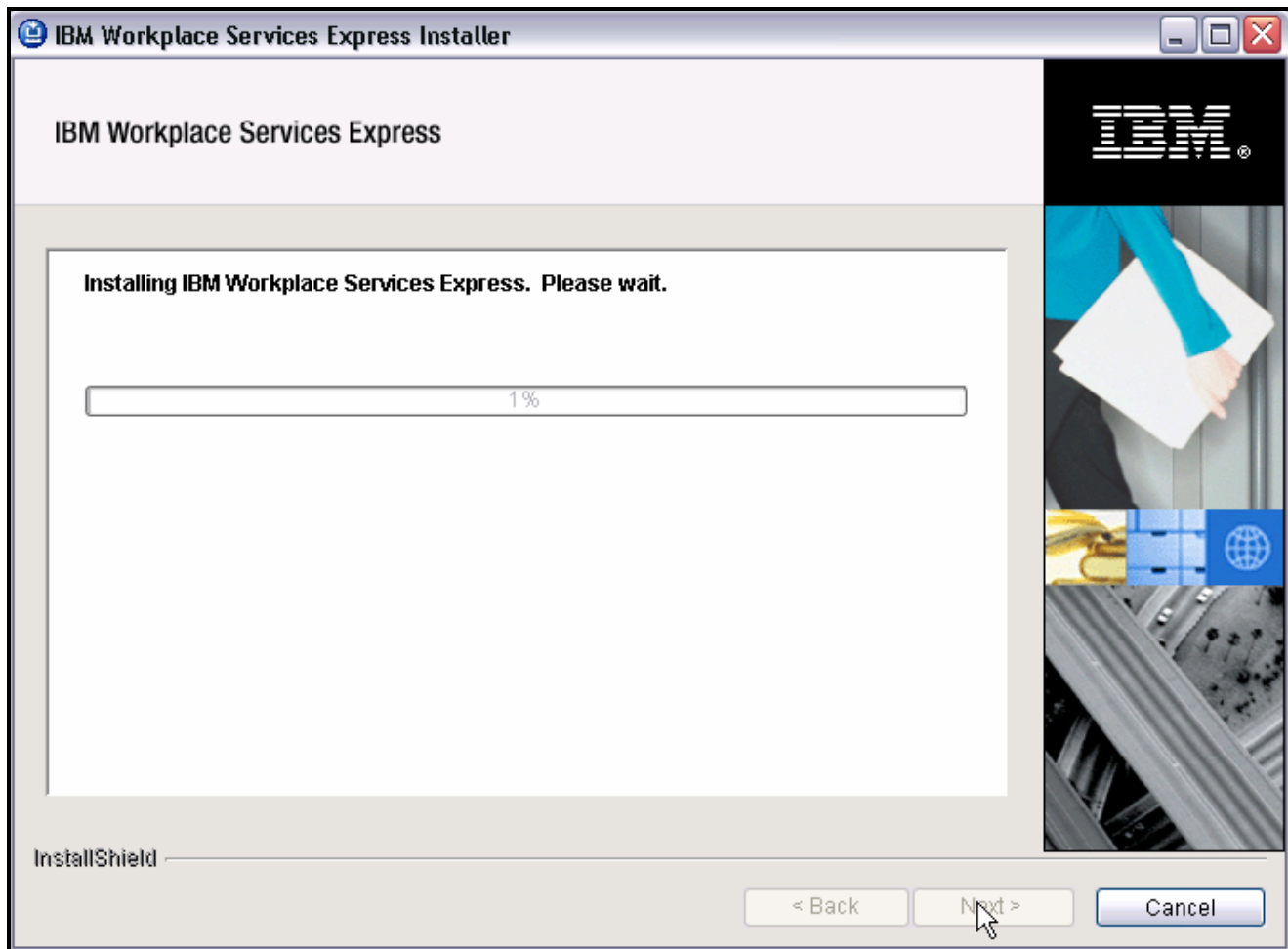
Figure 32. Workplace Services Express installation progress bar

12. At the successful installation message, click **Next** to proceed with the configuration now. Click **Cancel** to exit and configure the Workplace Services Express instance later (see Figure 33).
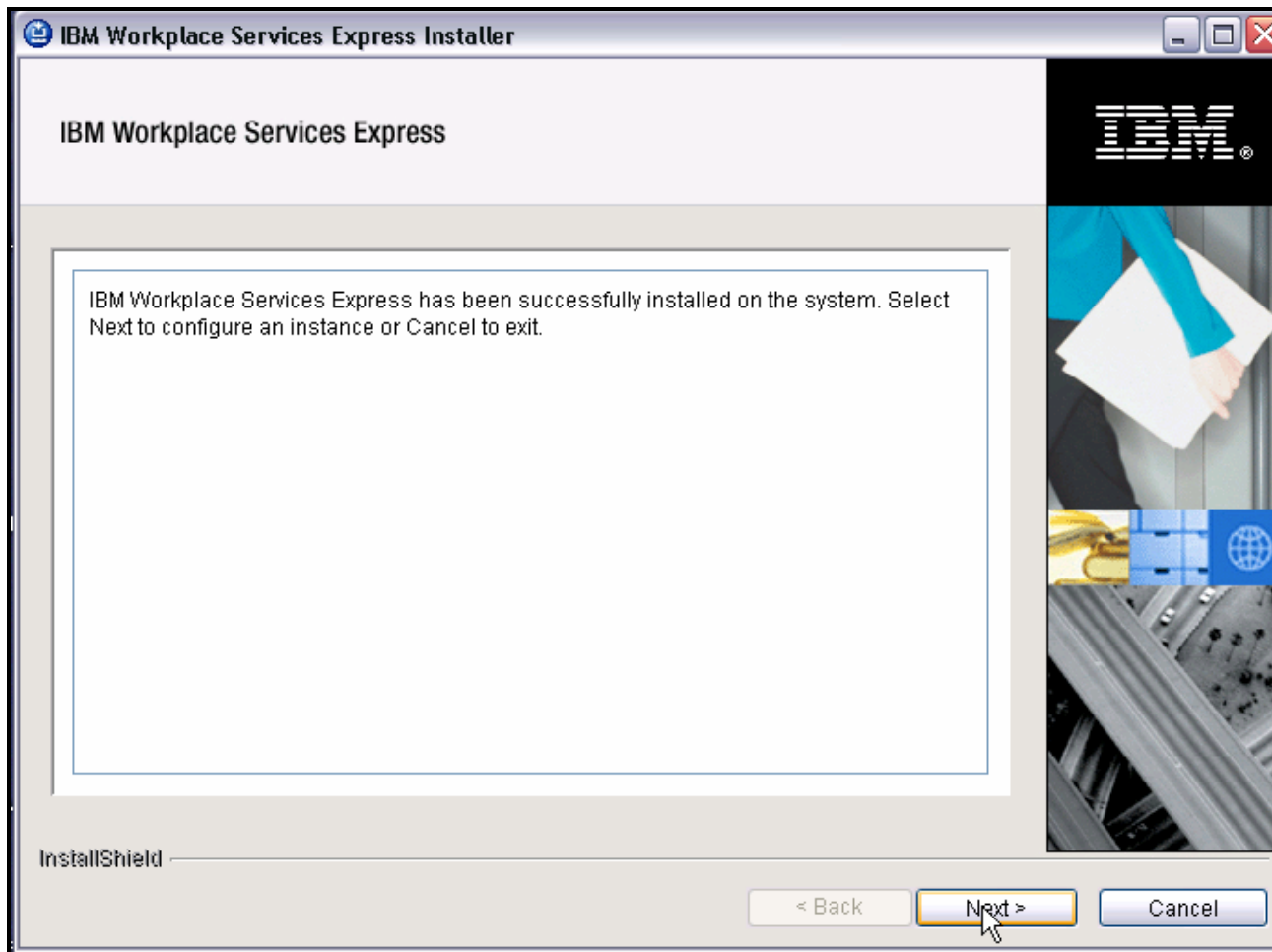
Figure 33. Workplace Services Express has successfully installed.

Verifying the Workplace Services Express installation

The following steps will assist you in verifying the Workplace Services Express installation:

1. Enter the command
   `wrklnk '/qibm/proddata/workplace/WSE26'` (see Figure 34).

```
                        Work with Object Links

  Directory  . . . . :    /qibm/proddata/workplace/WSE26

  Type options, press Enter.
    2=Edit   3=Copy   4=Remove   5=Display   7=Rename   8=Display attributes
    11=Change current directory ...

  Opt    Object link            Type     Attribute    Text
  __     archives               DIR
  __     dist                   DIR
  __     install.sh             STMF
  __     installresponse.tx >   STMF
  __     license                DIR
  __     rmvwseinst.sh          STMF
  __     tools                  DIR
  __     Version.txt            STMF
  __     WorkplaceServer        DIR
                                                                    Bottom
```

Figure 34. Workplace Services Express 2.6 product directory

2. Check the following installation log files:
   - /tmp/InstallShield/wse/productInstalllog.txt
   - /tmp/InstallShield/wse/wseinstalllog.txt

Configuring a Workplace Services Express instance with IBM Web Administration for i5/OS

Here are the steps for configuring a Workplace Services Express instance by using the Web Administration for i5/OS tool.

1. Start the administrative HTTP server by entering the following command on an i5/OS command line:
   ```
   STRTCPSVR SERVER(*HTTP) HTTPSVR(*ADMIN)
   ```
2. Start the QEJBAS5 subsystem by entering:
   ```
   STRSBS SBSD(QEJBAS5/QEJBAS5)
   ```
3. Launch the IBM Web Administration for i5/OS tool by pointing your browser to
   http://<*System_i_model*>:2001/HTTPAdmin.
   a. Click **IBM Web Administration for iSeries**.
   b. Click **Create IBM Workplace** (see Figure 35).
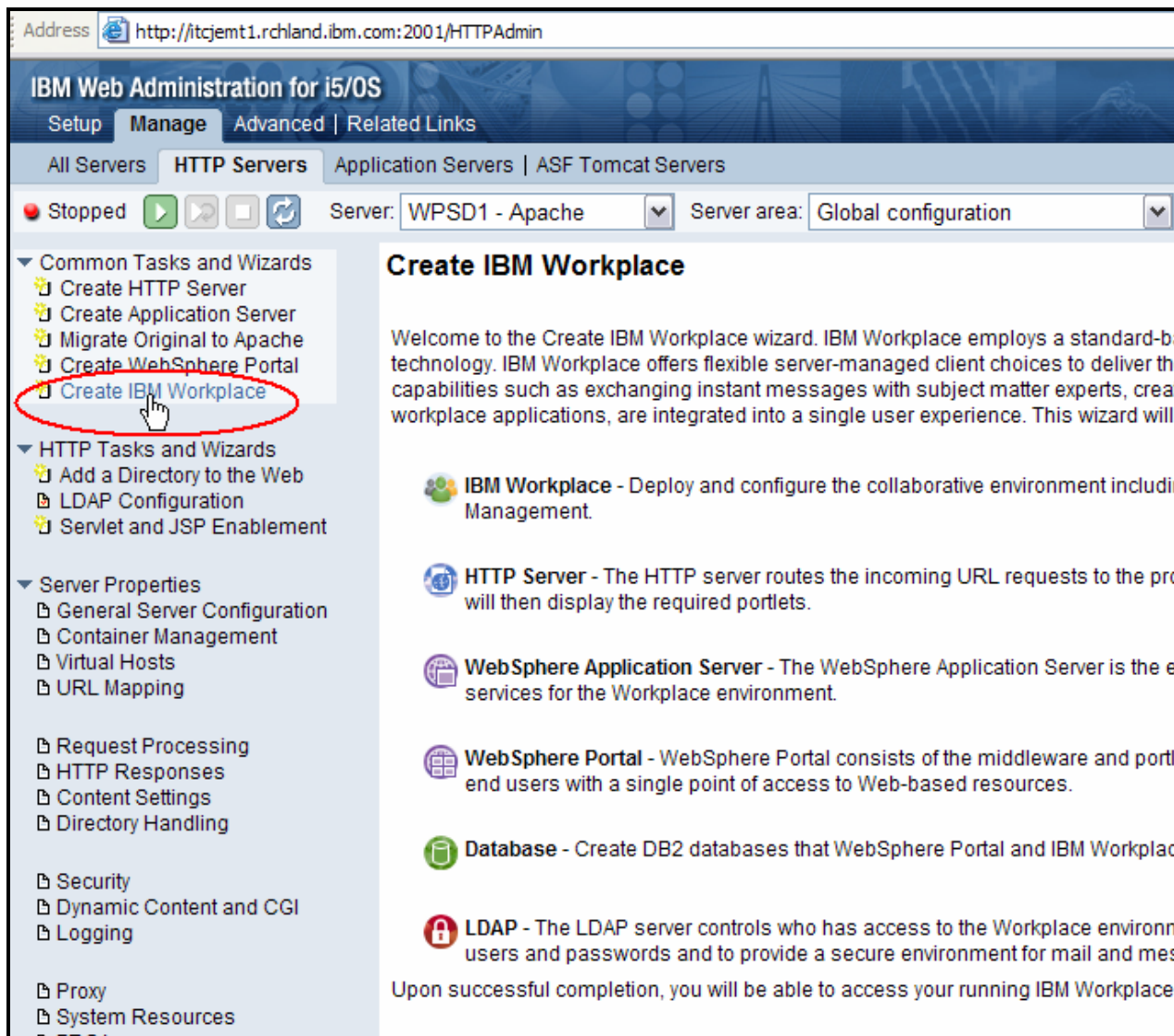
Figure 35. Select Create IBM Workplace.

3. Click **Next** (see Figure 36).
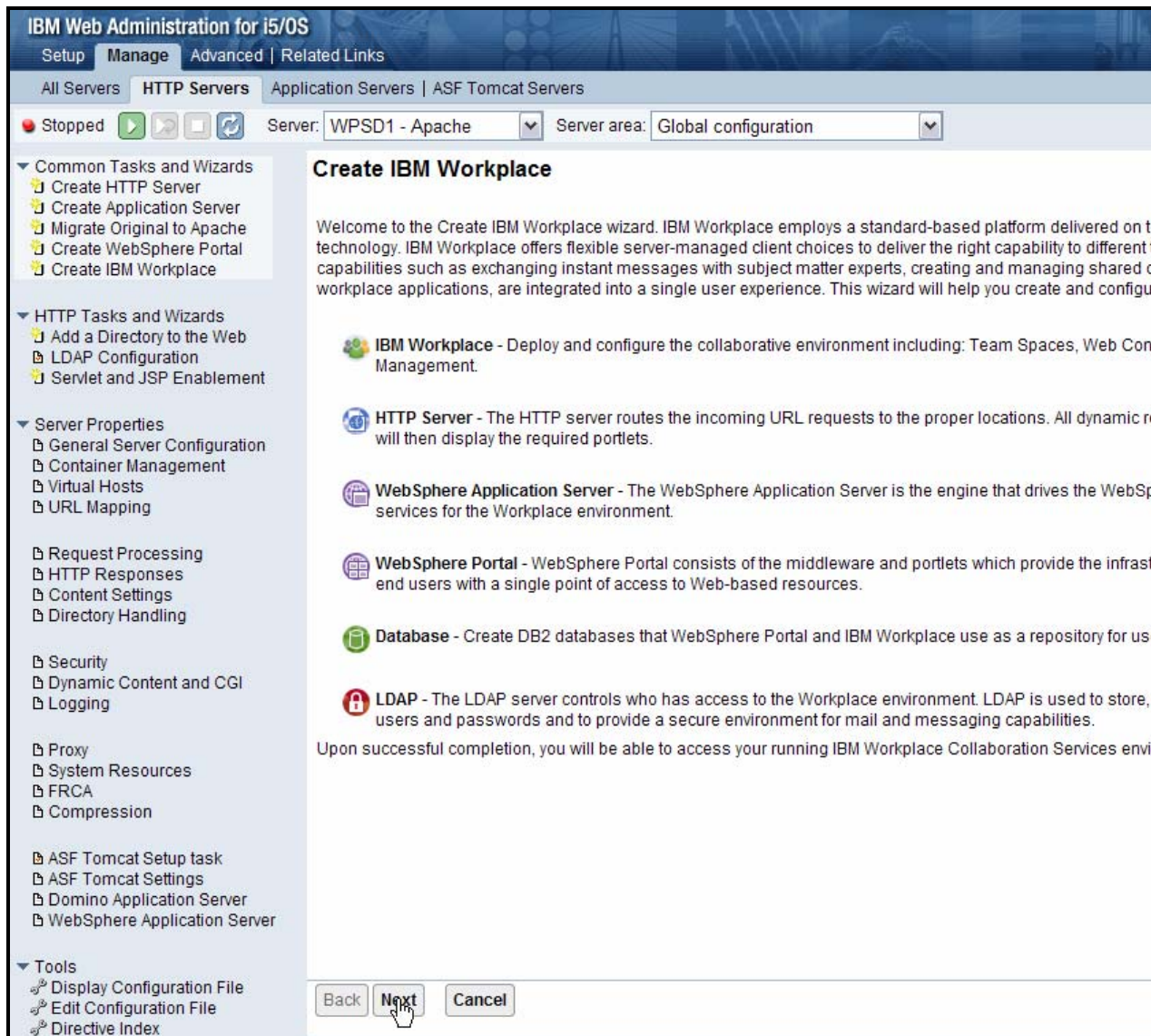
Figure 36. Continue Create IBM Workplace setup.

4. Select **IBM Workplace Services Express V2.6** and click **Next** (see Figure 37).

Create IBM Workplace
Select IBM Workplace Version

Select the version of IBM Workplace to create:

- ○ IBM Workplace Collaboration Services V2.6
- ● IBM Workplace Services Express V2.6
- ○ IBM Workplace Services Express V2.5.1
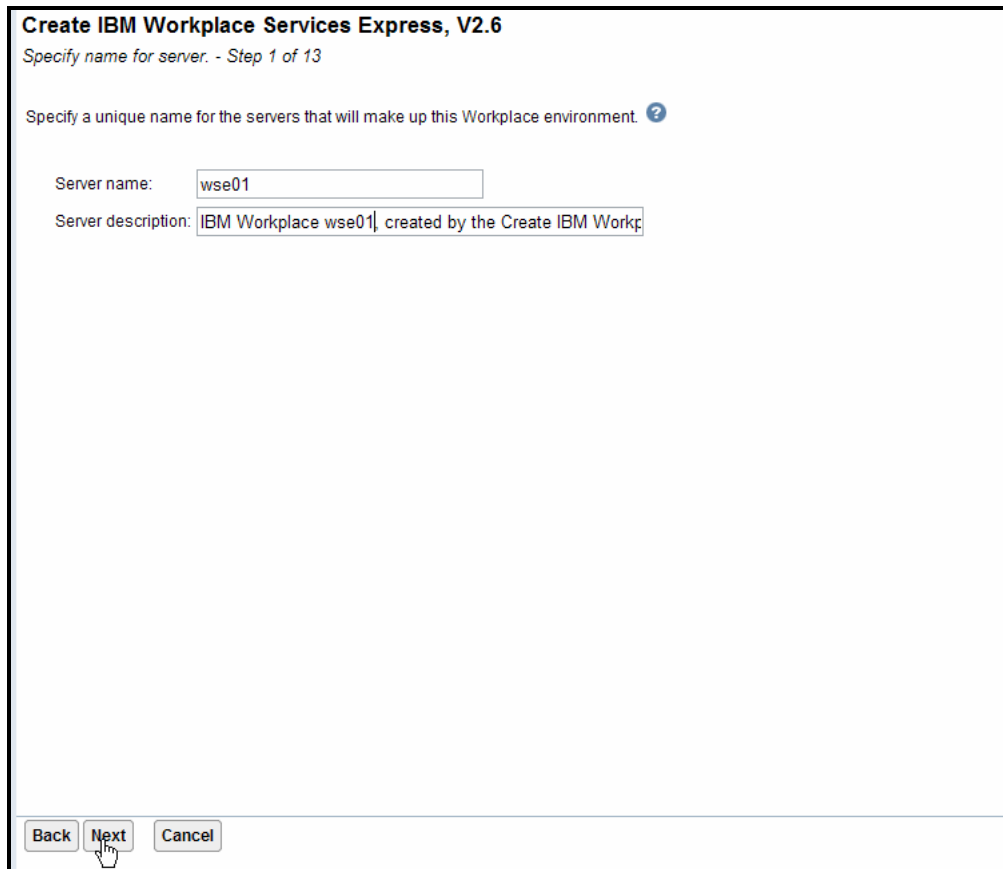
IBM Workplace Services Express V2.6 offers a simplified collaboration solution for small and medium businesses by providing select collaborative capabilities such as instant messaging and team spaces.

Back | Next | Cancel

Figure 37. Select IBM Workplace Services Express V2.6.

5.   Enter the Workplace Services Express server name and click **Next** (see Figure 38).

Create IBM Workplace Services Express, V2.6
Specify name for server. - Step 1 of 13

Specify a unique name for the servers that will make up this Workplace environment. ⍰

Server name:	wse01
Server description:	IBM Workplace wse01, created by the Create IBM Workp

Back   Next   Cancel

Figure 38. Enter the Workplace Services Express Server name.

Note: The wizard recommends that PTF group SF99114 Level: 3 or later is installed. This is a warning message that you can ignore. Click **Next** to continue.

6. The wizard installs all the Workplace Services Express components. The IBM Workplace configuration wizard detects that iSeries Access for Web is installed on the system and provides the option to deploy the iSeries Access for Web portlets. To deploy the portlets, select **iSeries Access for Web portlets** and click **Next** (see Figure 39).
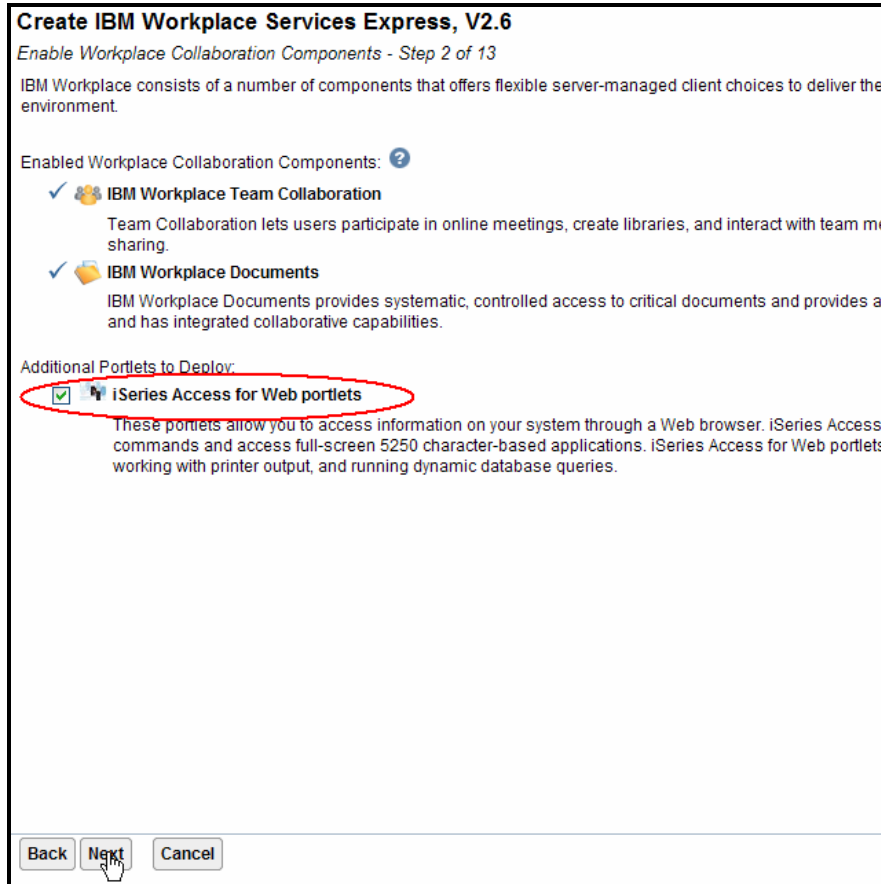
Figure 39. Deploy iSeries Access for Web portlets

7. Select any fully qualified host name on your System i model that is not currently in use by another server (see Figure 40).
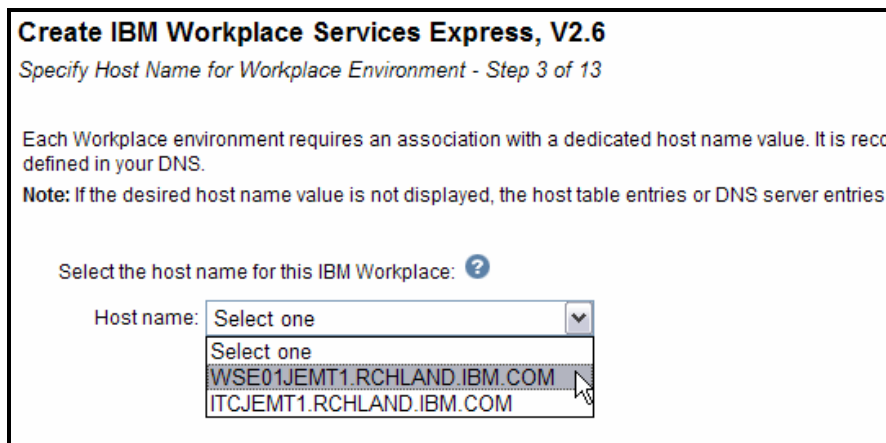
Figure 40. Select the host name for this Workplace Services Express instance.

8. Click **Next** (see Figure 41).

Create IBM Workplace Services Express, V2.6

Specify Host Name for Workplace Environment - Step 3 of 13

Each Workplace environment requires an association with a dedicated host name value. It is recommended that TCP/IP be defined in your DNS.

Note: If the desired host name value is not displayed, the host table entries or DNS server entries are not correctly configured

Select the host name for this IBM Workplace: ❓

Host name: WSE01JEMT1.RCHLAND.IBM.COM ▾

The following ports will be bound to the selected host name:

Activate service	Service name	Unsecured and Secure Port value	Service d
✓	SIP	5060 - TCP	Session Initiated Protocol - a protocol used fo
✓	SMTP	25 - TCP	Simple Mail Transfer Protocol - a protocol use

Back   Next   Cancel

Figure 41. Continue setup after selecting a host name.

9. Specify any free port range; the wizard proposes a free port range and validates that the port range that you specify is not in use. Click **Next** (see Figure 42).

Create IBM Workplace Services Express, V2.6

Specify Internal Ports Used by the Application Server - Step 4 of 13

The Workplace environment is made up of several servers within the WebSphere Application Server instanc
service, Simple Object Access Protocol (SOAP) service, name service, and several other services to perform
block of 100 consecutive ports that are currently not in use on your system. Specify the first TCP port number
internal service. For example, if 10000 is entered as the first port in the range, then ports 10000 to 10099 will

First port in range: 10000 ?

Back | Next | Cancel

Figure 42. Specify a free port range.

10. At the Create a new HTTP server step, accept the defaults and click **Next** (see Figure 43).

Create IBM Workplace Services Express, V2.6
Create a new HTTP server (powered by Apache) - Step 5 of 13

The application server requires an association with a HTTP server. A new HTTP server (powered by A application server. ❓

HTTP server name: wse01

HTTP server description: HTTP server created by the Create IBM Workpl

Your HTTP server will listen for requests on a the IP address specified for the Workplace environment

On which IP address and TCP port would you like your HTTP server to listen?

IP address/Hostname: 9.5.110.38/WSE01JEMT1.RCHLAND.IBM.COM ⌄

Port: 80

Note: Most browsers make requests to port 80 by default.

Back   Next   Cancel

Figure 43. Create HTTP server.

11. Enter the database user ID and password and click **Next** (see Figure 44).

Create IBM Workplace Services Express, V2.6

Create DB2 Databases for Workplace Environment - Step 6 of 13

IBM Workplace requires several databases to store customized portal information, settings, web pages an
can be created on this local i5/OS server or on a remote i5/OS server to be used by this Workplace environ

The databases being created need to be owned by an i5/OS user ID. It is recommended that a special use
the databases from being associated with a specific user whose user ID may be removed in the future. Th
named 'WPSDBUSER' is recommended.

Specify where to create the collection, schema, or library name to use for the databases: ❷

   ○ Create new collections on this **local** i5/OS server. Specify an **existing** user ID to own the databases

   ◉ Create new collections on this **local** i5/OS server. Create a **new** user ID to own the databases.

       User ID: `wse01user`

       Password: ●●●●●●●●

       Confirm password: ●●●●●●●●

   ○ Create new collections on a **remote** i5/OS server

Specify database naming method:

   ◉ Name databases based on the server name. *e.g. WSE011,WSE012,WSE013, ...*

   ○ Name databases based on their purpose. *e.g. PORTALDB1, LWPMSG1, LWPLMS1, ...*

Back Next Cancel

Figure 44. Enter database user ID and password.

12. Select **Configure security using LDAP now** and click **Next** (see Figure 45).

Create IBM Workplace Services Express, V2.6

Secure Application Server and Workplace Environment with LDAP - Step 7 of 13

Securing the IBM Workplace is critical for protecting your organization's resources. If selected, the wizard will configure secu
following:

- Global security will be turned on for the application server.
- Access to an LDAP server will be required. This will be the repository of users and will provide security for the W
- The LDAP server must be active, and a user and password that can access the directory will need to be provide
- The wizard will update the LDAP server with the application server and Workplace environment information, if ne
- Single Signon (SSO) will be configured for the application server.
- WebSphere Member Manager (WMM) and a look-aside database will be configured to store additional informati

Specify security options for the Workplace environment: ❓

⦿ Configure security using LDAP now. (Recommended)

    Specify LDAP server information:

      LDAP server host name: `ITCJEMT1.RCHLAND.IBM.COM` e.g. "hostname.domain.com"

      LDAP port: `389`

◯ Configure security using LDAP at a later time.

[Back] [Next] [Cancel]

*Figure 45. Select **Configure security using LDAP now**.*

13. Enter the LDAP administrator name and password and click **Next** (see Figure 46).

Create IBM Workplace Services Express, V2.6

LDAP Configuration Parameters - Step 8 of 13

Security for the Workplace environment can be configured with write access or read-only access to the LDAP directory info
manage user information. Read-only access will not allow the Workplace server to update user information in the LDAP d

Specify the access method: ❓

   ◉ Allow write access to the LDAP directory.

     Specify an LDAP user DN that has write access to the LDAP directory. The LDAP administrator value is recommend

      LDAP user DN: `cn=administrator`   e.g. cn=administrator

      LDAP user password: `••••••••`

   ○ Allow read-only access to the LDAP directory.

[Back] [Next] [Cancel]

Figure 46. Enter the LDAP administrator name and password.

14. If you use the default LDAP suffix, click **Next** (see Figure 47).

*Figure 47. Click **Next** if using the default LDAP suffix.*

If you are using an LDAP suffix other than the default suffix, click **Browse** in the Information describing user entries section of this window (see Figure 48).

Figure 48. Browse Information describing user entries section for a different LDAP suffix other than the default.

15. Select the suffix for cn=users that you created earlier and select **cn=users**. Verify that cn=users, dc=…. appears at the bottom (see Figure 49) and click **OK**.
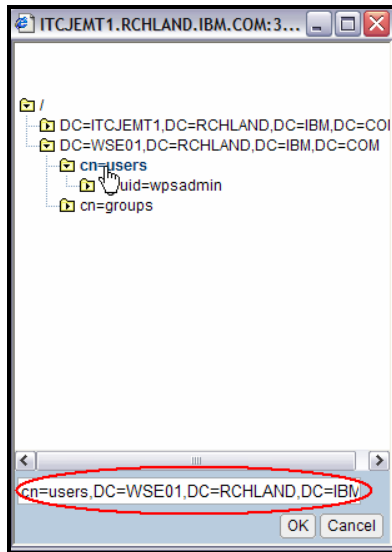
Figure 49. Select the suffix for cn=users.

16. If you are using an LDAP suffix other than the default suffix, click **Browse** in the Information describing the administrative group entry section (see Figure 50).
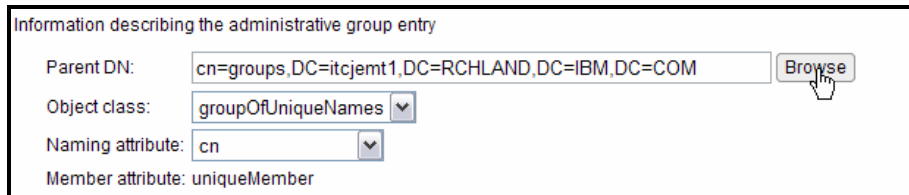
Figure 50. Browse Information describing user entries section to select a nondefault suffix for cn=groups.

17. Select the suffix for cn=groups that you created earlier. Make sure that cn=groups,dc=…
appears at the bottom (see Figure 51) and click **OK**.
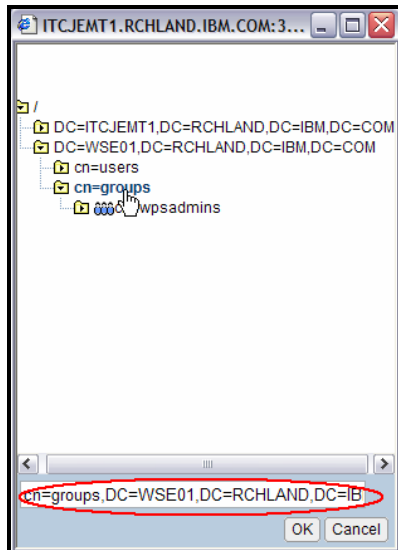
Figure 51. Select suffix for cn=groups.

Figure 52 shows the final LDAP users and groups selection. Click **Next**.

Figure 52. LDAP users and groups

18. Type the **wpsadmin** password and click **Next** (see Figure 53).

Create IBM Workplace Services Express, V2.6

LDAP Administrative Group and Administrative User - Step 10 of 13

IBM Workplace requires an administrative group and user entry in the LDAP directory. If the group and user entries do no
entries already exist, the wizard will validate that they are correct. The wizard will also ensure that the administrator user

Note: The administrator user name specified here is the Workplace administrator, the WebSphere Application Server ad

Workplace administrative group information: ?

Group name: | wpsadmins | Browse

Workplace administrator information:

User name: | wpsadmin | Browse

Password: | •••••••• | Important - Keep this for future reference

Confirm password: | •••••••• |

Back   Next   Cancel

Figure 53. Workplace administrative user and group

19. If you are not planning to configure single sign-on (SSO) with multiple Web servers, accept the
    defaults and click **Next**.

Create IBM Workplace Services Express, V2.6

Web Server Single Signon (SSO) Configuration Parameters - Step 11 of 13

Web Server Single Signon (SSO) will be configured by the wizard. SSO is a mechanism where a single user signon action permits access to multiple W
authenticate. The domain name identifies the Web servers that can be accessed within the SSO environment. SSO is useful when your Portal server ne
Web servers such as Domino, QuickPlace, Sametime, or WebSphere Application Servers.

- If your Workplace environment does not require information from other Web servers, the SSO domain should be limited to this Web server's host
- If your Workplace environment requires information from other Web servers, you will need to specify an SSO domain name. This domain name r
  qualified Domain Name System (DNS) host name that is shared by all Web servers participating in your SSO environment. When accessing any
  environment, you will only need to authenticate one time.

Specify SSO domain: ❓

⦿ Limit SSO domain to this Web server's hostname

◯ Include other Web servers in your SSO environment

Back | Next | Cancel

Figure 54. Single signon configuration

20. Select **Do not configure Identity Tokens** and click **Next** (see Figure 55).

Create IBM Workplace Services Express, V2.6

Configure Identity Token SSO for Web to i5/OS Access - Step 12 of 13

Identity Token SSO is a mechanism where a single user signon action permits access to multiple i5/OS servers. This allows
applications without having to prompt for additional authentication. Identity Tokens are implemented using Enterprise Identity
users and i5/OS user profiles. The application server creates a token for the servers configured to support Identity Tokens in t

Note: EIM is hosted on an LDAP server that must be configured and running before continuing.

Configure Identity Tokens: ❓

◉ Do not configure Identity Tokens

○ Configure Identity Tokens

Back   Next   Cancel

*Figure 55. Select **Do not configure Identity Tokens**.*

21. Review the configuration. The following panels (see Figure 56 through Figure 62) show the
Workplace Services Express configuration summary as an example.

Create IBM Workplace Services Express, V2.6

Summary - Step 13 of 13

When you click Finish, everything necessary to run an IBM Workplace environment will be created. Please note that you will need to
configuration may take sometime to complete. You can monitor the progress from the Manage IBM Workplace introduction page th

Database Information	Ports

Servers	Portal	Security	Workplace Components	Document Renderer

HTTP Server (Powered by Apache) Information

HTTP server name:	WSE01
HTTP server description:	HTTP server created by the Create IBM Workplace wizard.
IP address/Hostname:	9.5.110.62/ITCJEMT1.RCHLAND.IBM.COM
Port:	80
Server root:	/www/wse01
Document root:	/www/wse01/htdocs

WebSphere Application Server Information

Instance name:	wse01
Server description:	IBM Workplace wse01, created by the Create IBM Workplace wizard
Instance root:	/QIBM/UserData/WebAS5/Base/wse01
Internal port range:	10000 - 10099
Virtual host:	default_host
Server secured:	Yes
User name:	wpsadmin

Servers within instance:

Server name	Port range
WebSphere_Portal	10000 - 10012
server1	10013 - 10025

Your new IBM Workplace environment will be created when you click the Finish button. Upon successful completion the URL w

Back	Finish	Cancel	Edit

Figure 56. Portal configuration information summary

Create IBM Workplace Services Express, V2.6

Summary - Step 13 of 13

When you click Finish, everything necessary to run an IBM Workplace environment will be created. Please note that you will need
configuration may take sometime to complete. You can monitor the progress from the Manage IBM Workplace introduction page

Database Information	Ports

Servers	Portal	Security	Workplace Components	Document Renderer

General security information

Server secured:	Yes
User repository:	LDAP

LDAP Server

Server type:	IBM Directory Server
LDAP server host name:	ITCJEMT1.RCHLAND.IBM.COM
LDAP port:	389

LDAP access information

LDAP user DN:	cn=administrator
Access authority:	Write access

Information describing user entries

Parent DN:	cn=users,DC=WSE01,DC=RCHLAND,DC=IBM,DC=COM
Naming attribute:	uid
Object class:	inetOrgPerson

Information describing the administrative group entry

Parent DN:	cn=groups,DC=WSE01,DC=RCHLAND,DC=IBM,DC=COM
Naming attribute:	cn
Object class:	groupOfUniqueNames

Back	Finish	Cancel	Edit

Figure 57. General security information

Create IBM Workplace Services Express, V2.6

Summary - Step 13 of 13

When you click Finish, everything necessary to run an IBM Workplace environment will be created. Please note that you will need to be patient during this process as the creation and configuration may take sometime to complete. You can monitor the progress from the Manage IBM Workplace introduction page that will display after the Finish button has been clicked.

Database Information	Ports

Servers	Portal	Security	Workplace Components	Document Renderer

IBM Workplace components to be enabled

    IBM Workplace Team Collaboration: Enabled
    IBM Workplace Documents: Enabled

Additional Portlets to Deploy

    iSeries Access for Web portlets: Enabled

General Workplace attributes

    Host name: ITCJEMT1.RCHLAND.IBM.COM
    Common database: WSE0125

Your new IBM Workplace environment will be created when you click the Finish button. Upon successful completion the URL will be **"http://itcjemt1.rchland.ibm.com/lwp/workplace"**.

Figure 58. Workplace components

Create IBM Workplace Services Express, V2.6

Summary - Step 13 of 13

When you click Finish, everything necessary to run an IBM Workplace environment will be created. Please note that you will need to be patient during this process as the creation and configuration may take sometime to complete. You can monitor the progress from the Manage IBM Workplace introduction page that will display after the Finish button has been clicked.

Database Information	Ports

Servers	Portal	Security	Workplace Components	Document Renderer

The XVFB (X Virtual Frame Buffer) server created by the wizard and used to display documents in a standard format such as PDF. This server runs in PASE (Portable Application Solutions Environment).

    Hostname:displayNumber: ITCJEMT1.RCHLAND.IBM.COM:1

Your new IBM Workplace environment will be created when you click the Finish button. Upon successful completion the URL will be **"http://wse01jemt1.rchland.ibm.com/lwp/workplace"**.

Figure 59. Document renderer

Figure 60. Workplace database information

Figure 61. Utilized ports by the server

The following ports will be bound across all IP addresses:

Port	Server	Service Description
10100	WebSphere_Portal	Name service
10101	WebSphere_Portal	SOAP
10109	WebSphere_Portal	Internal HTTP
10110	WebSphere_Portal	Administrative console
10111	WebSphere_Portal	Administrative console SSL-enabled
10112	WebSphere_Portal	Internal HTTP SSL-enabled
10113	server1	Name service
10114	server1	SOAP
10122	server1	Internal HTTP
10123	server1	Internal HTTP SSL-enabled
10124	server1	Administrative console
10125	server1	Administrative console SSL-enabled
10126	WebSphere_Portal	SIP TCP
10127	WebSphere_Portal	SIP TLS
10149	Cloudscape	Cloudscape network server
10150	WebSphere_Portal	Lotus Instant Messaging (LIM) Gateway

Your new IBM Workplace environment will be created when you click the Finish button. Upon successful completion the URL will be **"http://itcebiz4a.rchland.ibm.com/lwp/workplace"**.

Figure 62. List of ports bound across all IP addresses

22. Print the configuration summary for your records by clicking **Printable Summary** (see Figure 63).

Figure 63. Printing the configuration summary

23. Click **Finish** to create your Workplace environment (see Figure 64).

Figure 64. Completing the Workplace Services Express configuration

24. The process to complete the configuration will now run for several hours (four to six hours depending on the size of your system). You can close the browser now (see Figure 65); the configuration will continue on the System i model.

Figure 65. Close the browser; Workplace Services Express configuration completion in progress

Note: If you did not print the configuration summary when you configured the instance, you can retrieve it at any time by clicking **View Create Summary** (see Figure 66).
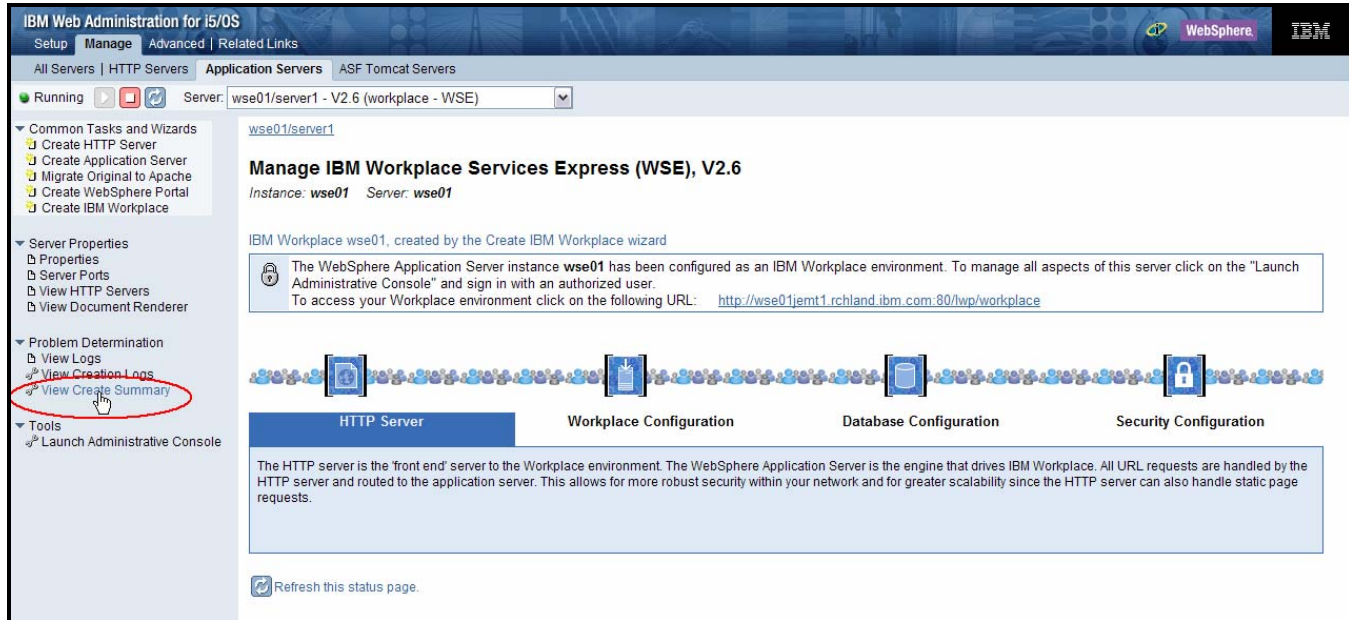
*Figure 66. Print the configuration summary by selecting **View Create Summary**.*

Workplace logs

This section lists the main Workplace logs.

IBM Web Administration for i5/OS: Create Workplace wizard logs

These logs are useful to diagnose problems during instance configuration. The logs are located at /QIBM/UserData/WebAS5/Base/<instance>/logs/<instance>

Perform the following steps to display the instance creation logs when you create a Workplace instance using IBM Web Administration for i5/OS:
1. Access IBM Web Administration for i5/OS at http://<*your_host*>:2001/HTTPAdmin.
2. Select your Workplace server.

3. Place the mouse over the Workplace configuration step for which you want to display the logs (**Workplace Configuration**, **Database Configuration**, or **Security Configuration**) and click **View the detailed list of tasks** (see Figure 67).
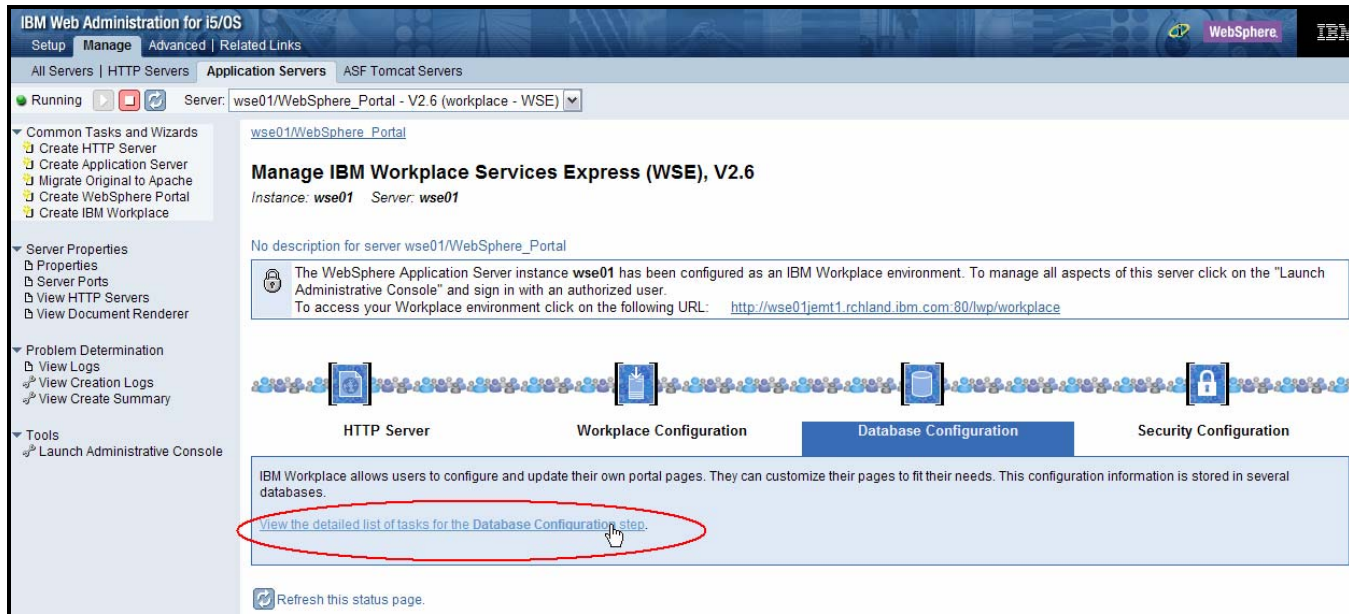
Figure 67. Displaying Workplace configuration logs

4. Click the log file name to display the details for each configuration task (see Figure 68).
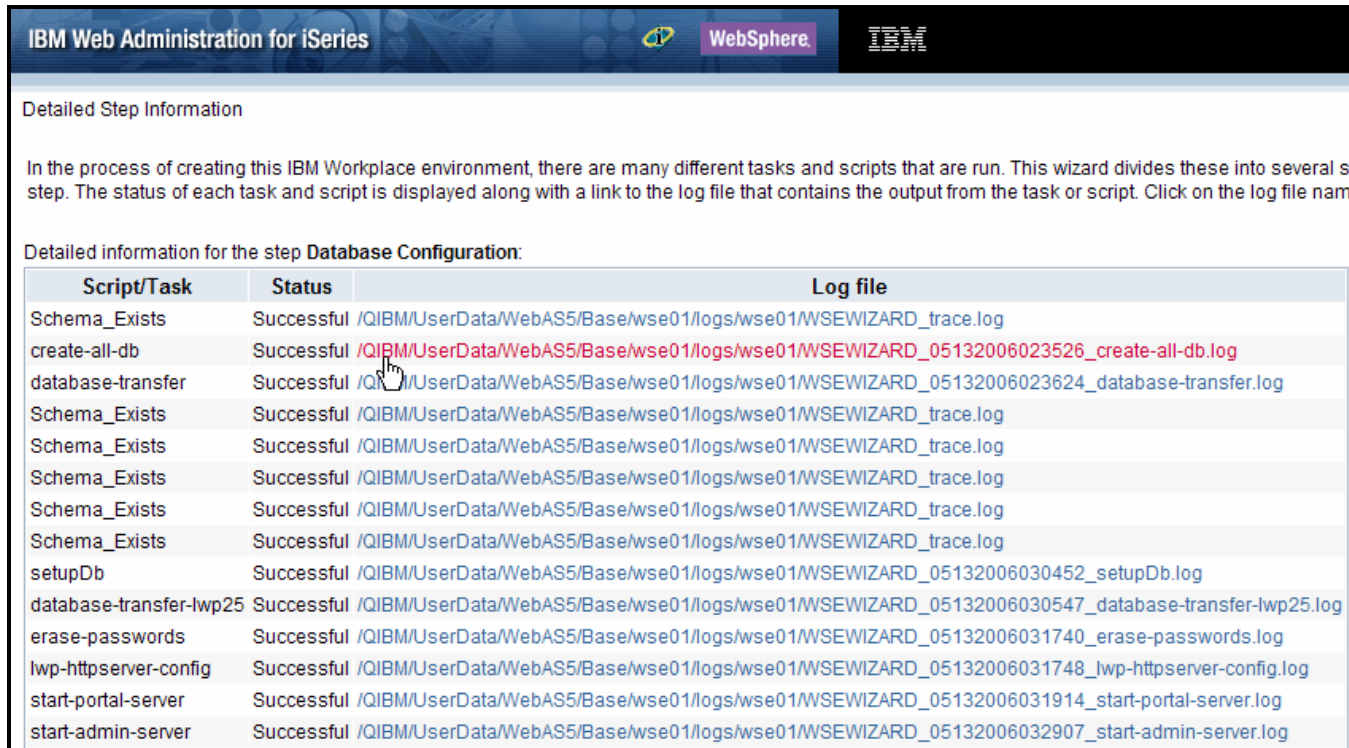
Figure 68. Displaying configuration task logs

3. Display the creation logs by clicking **Problem Determination -> View Creation Logs** (see Figure 69).
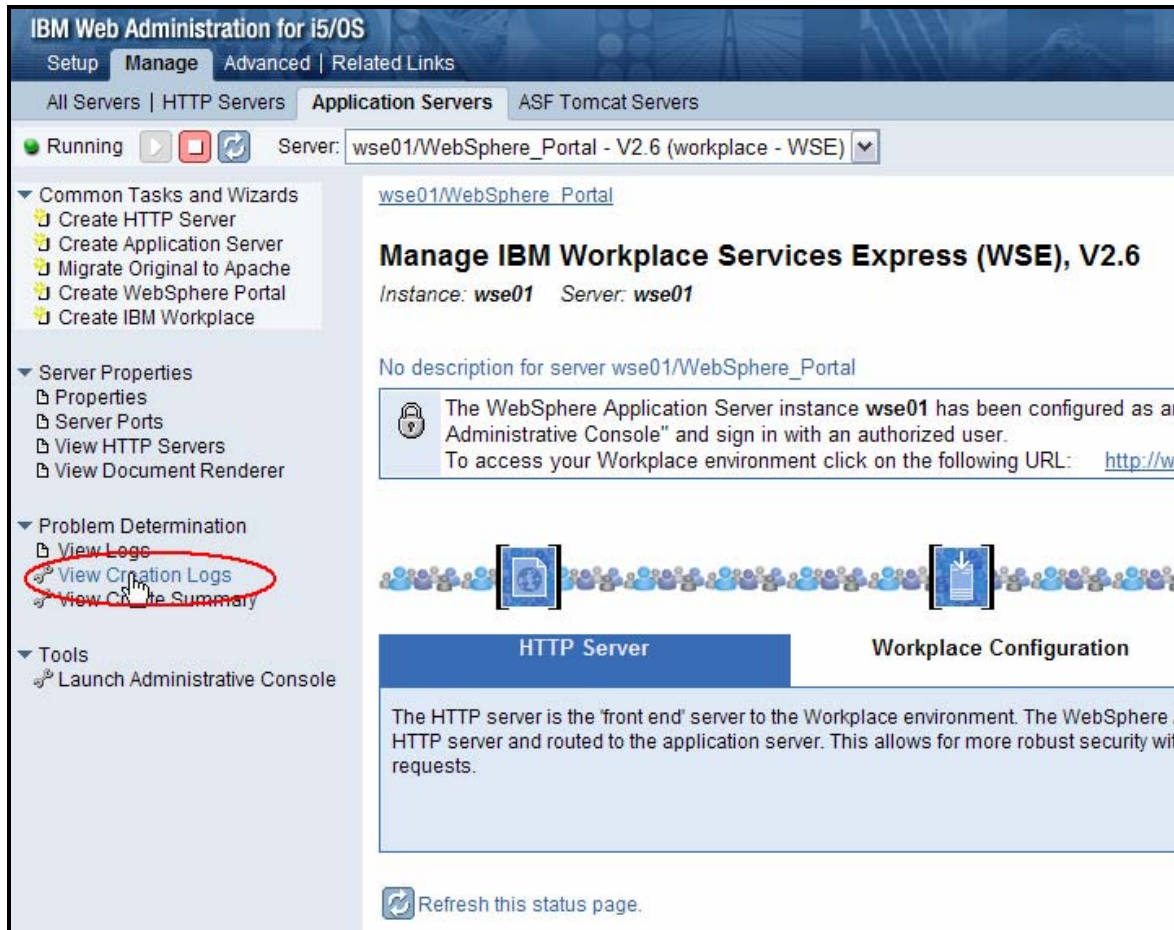
Figure 69. View creation logs

Portal logs

These logs are useful to diagnose problems during Workplace normal operations and initial configuration. The logs are located at /QIBM/UserData/WebAS5/Base/<instance>/PortalServer/log/.

The important logs are:
- ConfigTrace.log
- SystemOut.log
- SystemErr.log
- wps_*yyyy.mm.dd-hh.mm.ss*.log

1. You can display the portal logs from IBM Web Administration for i5/OS by clicking
   Problem Determination -> View Logs -> Portal Logs (see Figure 70).
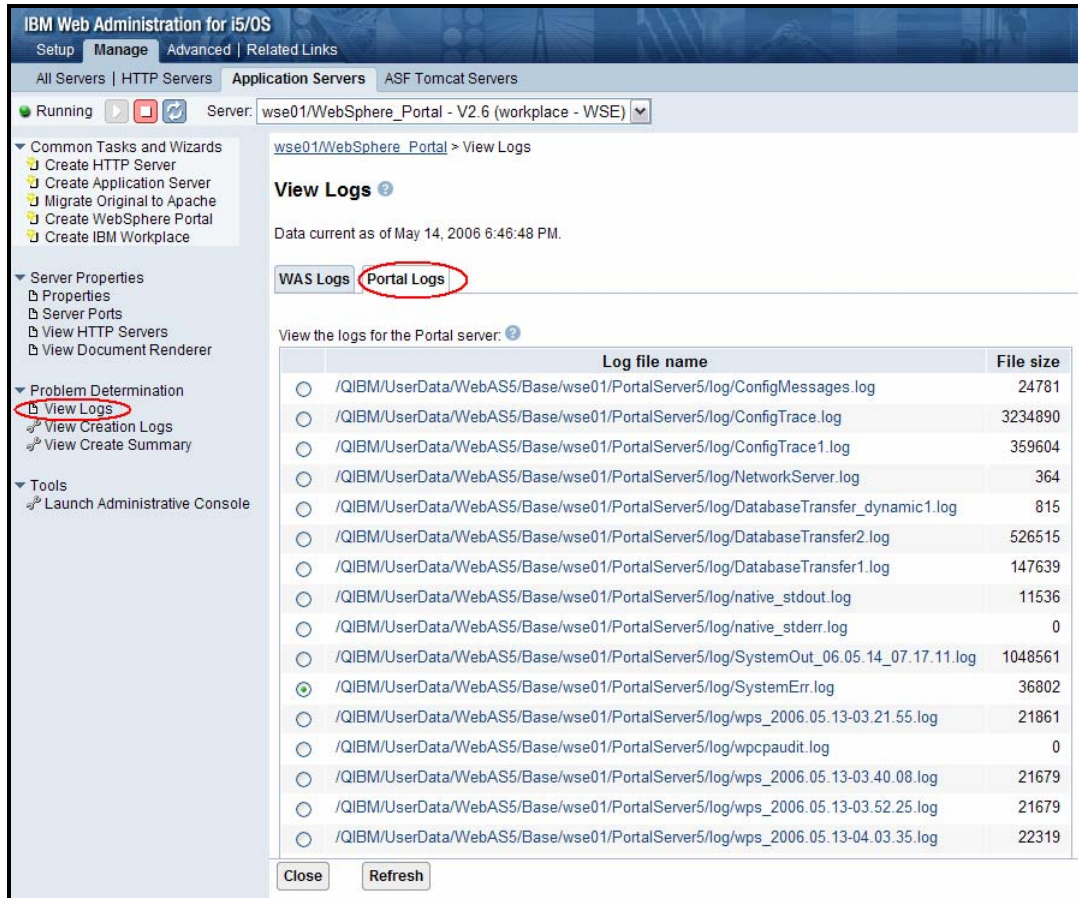
Figure 70. Viewing portal logs

Channel framework log

This log is useful to debug instant messaging (IM) and people awareness problems. The channel
framework log is located at
QIBM\UserData\WebAS5\Base\wse01\logs\LotusWorkplace_Server\channelframework.log.

Understanding Workplace Services Express work management

This section provides an overview of the main directories, jobs, and user profiles associated with the runtime environment of a Workplace Services Express instance on the System i model:

- Figure 71 shows the product directory /QIBM/ProdData/Workplace/WSE26.
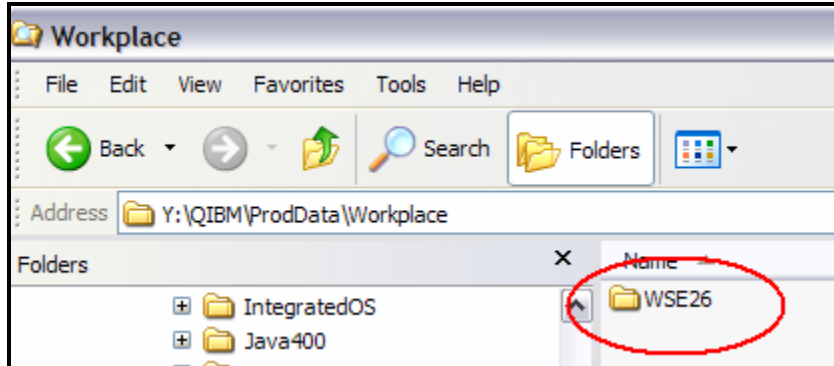
Figure 71. Product directory

- Figure 72 shows the Workplace Services Express instance directory QIBM/UserData/WebAS5/Base/<instance>
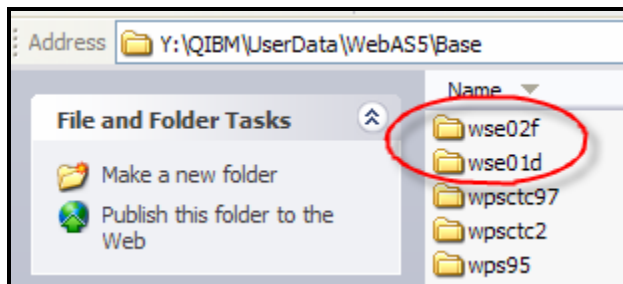
Figure 72. Workplace Services Express instance directory

The main components of a Workplace Services Express runtime environment are:

- Subsystem: QEJBAS5
- User: QEJBSVR
- QEJBAS5 subsystem jobs: Server1 (**Note:** Server1 does not need to remain active during normal operations. You can stop this application server to reduce the demands on main memory.)
                                  WebSphere
- HTTP Server: QHTTPSVR subsystem
                                  HTTP server name: *<wseinstance>*

Identifying application servers associated with the Workplace Services Express instance

Follow the steps provided in this section to select jobs and match them with Workplace Services Express instances:

1. Start all Workplace Services Express application servers.
2. From the command line, issue a `WRKACTJOB SBS(QEJBAS5)` command. You see the following jobs (see Figure 73):

- QJVAEXEC: This channel framework server starts along with the WebSphere_Portal application server. It is required for people awareness and chat.
- SERVER1: The server1 application server is not required during normal operations.
- WEBSPHERE_: This is the WebSphere_Portal application server.

*Figure 73. Job types: QJAEXEC,SERVER1, and WEBSPHERE_*

3. If you have multiple Workplace Services Express instances in your System i model, you can determine which job goes with which instance by performing the following steps:
   a. Look at the job log (see Figure 73) to access the **Work with** details, select option **5**.
   b. To access **Display Job Log** details, select option **10** (see Figure 74 through Figure 75).

Figure 74. Option 10, Display Job Log, for SERVER1

*Figure 75. Option 10, Display Job Log, for WEBSPHERE_*

4. To identify the channel framework server associated with the Workplace Services Express instance, match the start time with the WebSphere_Portal start time (see Figure 76).

```
                        Display Job Log
                                          System:     ITCEBIZ3
 Job . . :    QJVAEXEC      User . . :   QEJBSVR      Number . . . :   510308

    Job 510308/QEJBSVR/QJVAEXEC started on 06/29/05 at 22:06:24 in subsystem
      QEJBAS5 in QEJBAS5. Job entered system on 06/29/05 at 22:06:24.
```

Figure 76. Match start time with WebSphere_Portal start time for channel framework server

Starting and stopping Workplace Services Express application servers from IBM Web Administration for i5/OS

If you created the Workplace instance using the Create IBM Workplace Collaboration Services wizard, the easiest way to start and stop servers is using Web Administration for iSeries i5/OS:

1. Access Web Administration for i5/OS by going to
   http://<*System_i_model*>:2001/HTTPAdmin.
2. Select the **WebSphere_Portal** application server for your instance.
3. Click the **Stop** button (see Figure 77).
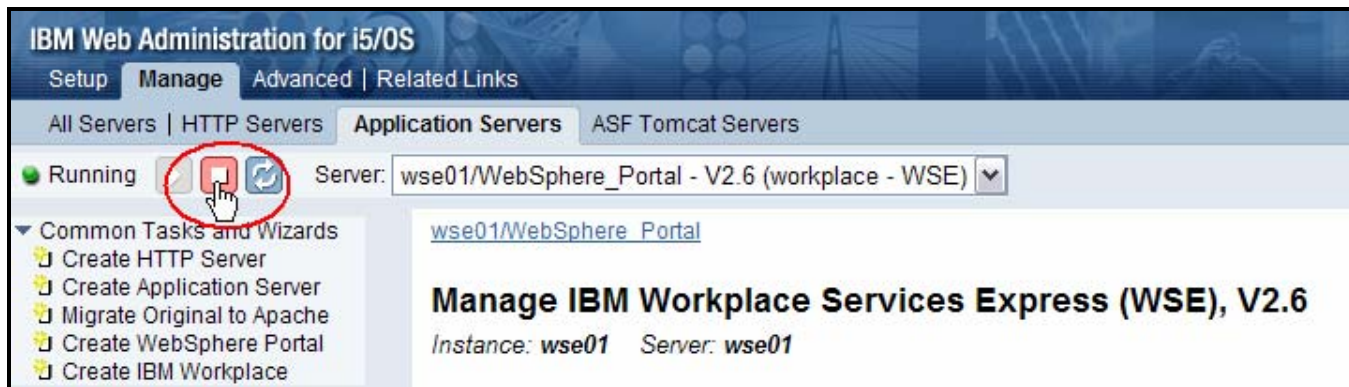
*Figure 77. Click the **Stop** button for the WebSphere_Portal application server instance*

4. Select the Workplace components that you want to stop and click **Stop** (see Figure 78).
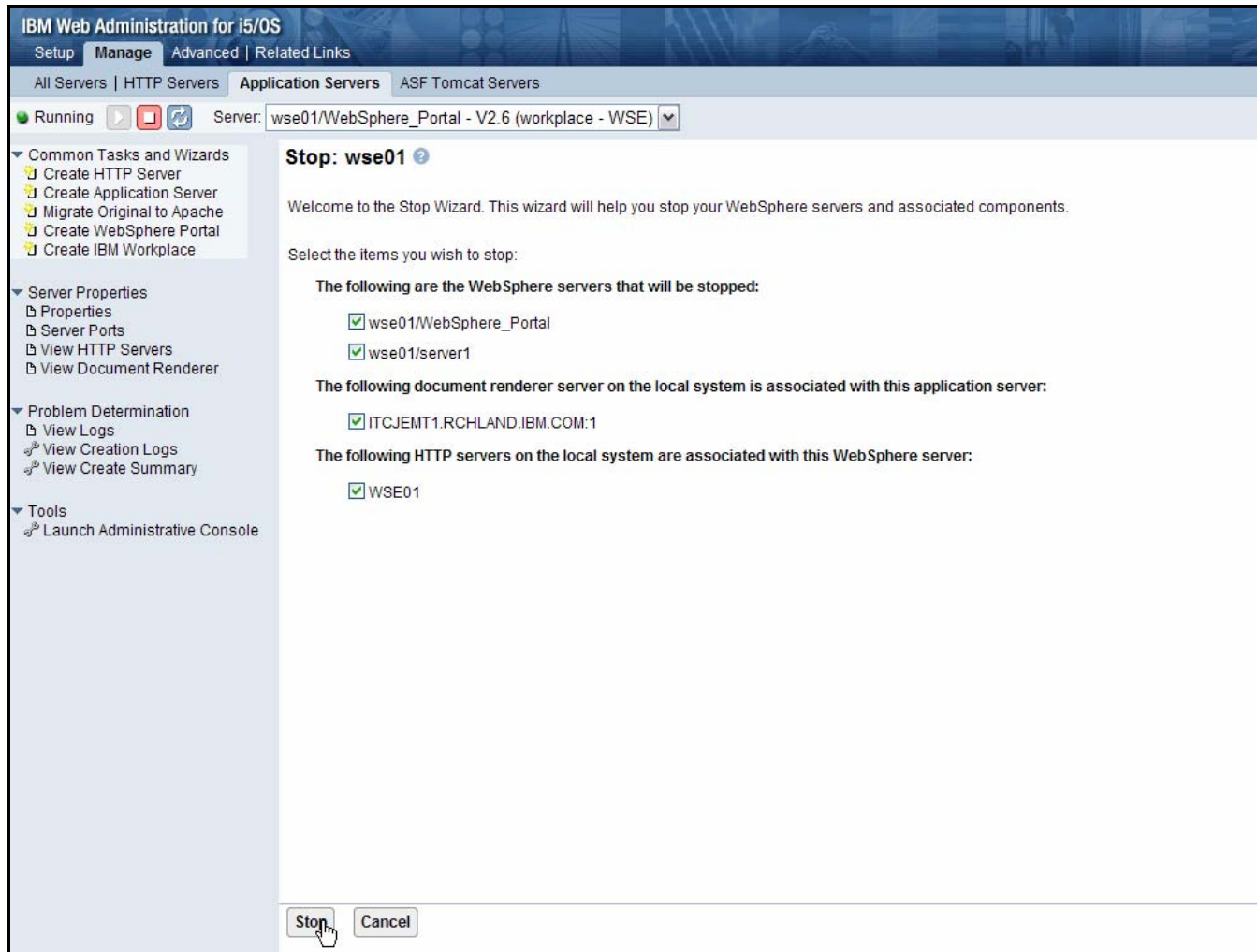
Figure 78. Stop a Workplace Services Express components

5. To start the servers for the Workplace instance, click the **Start** button (see Figure 79).

Figure 79. Start the selected Workplace server

6. To start the Workplace Services Express components, select the Workplace servers except for server1 that you want to start, and click **Start** (see Figure 7980).

   Note: Do not start server1. Select to start the server using XVFB, instead of VNC, if both are available (see Figure 80).
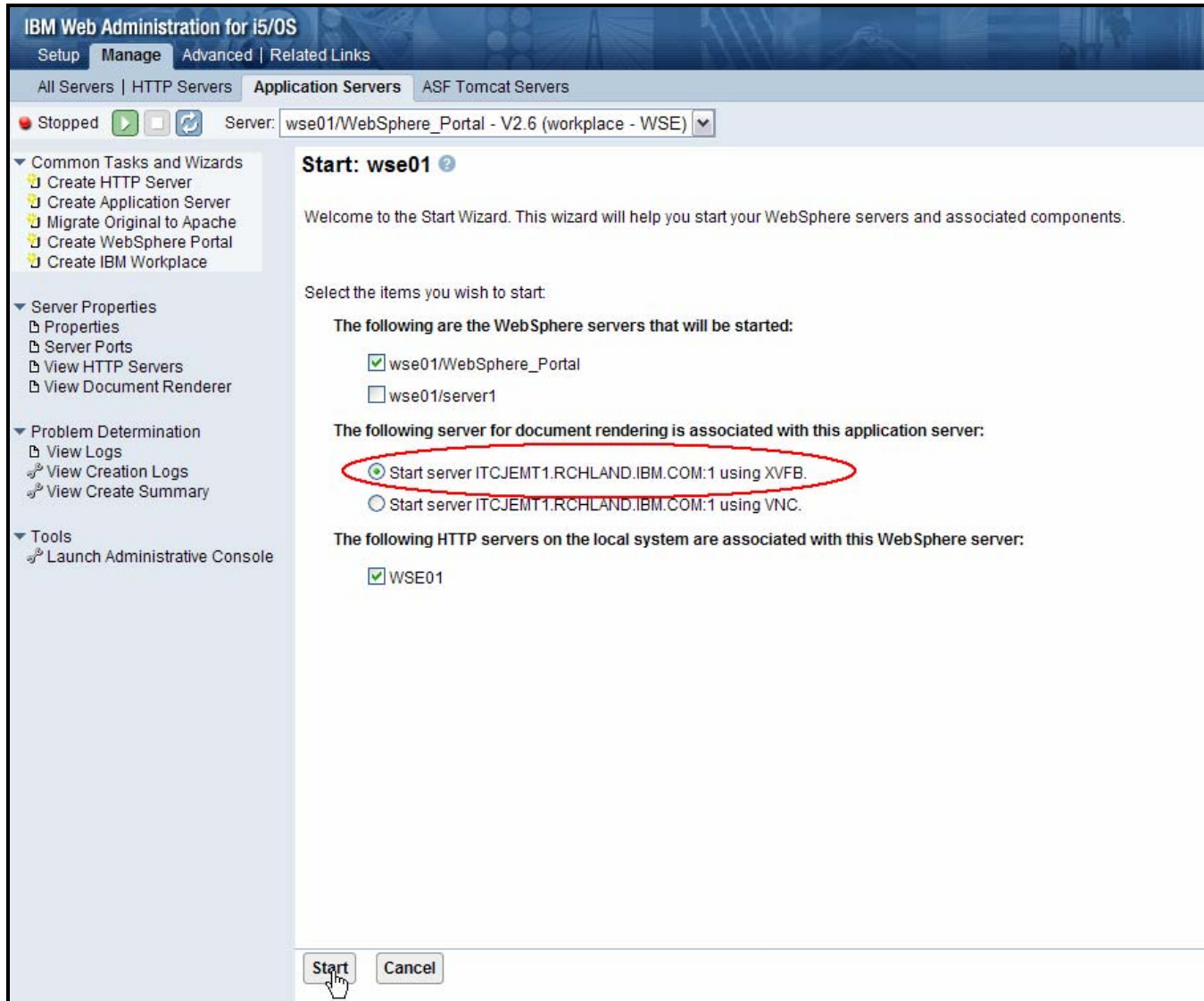
Figure 80. Starting the WebSphere server and associated components

Starting and stopping Workplace Services Express application servers from Qshell

There are two ways to start and stop the Workplace Services Express application servers using the Qshell scripts. You can use the root scripts or the standard WebSphere Application server scripts.

Using root scripts

You can use the Workplace scripts to start and stop Workplace Services Express servers from the QShell command environment.

1. Start the QEJBAS5 subsystem by issuing the i5/OS Start Subsystem command:
    `STRSBS SBSD(QEJBAS5/QEJBAS5)`
2. Start a Qshell session by entering the `STRQSH` command.
3. Enter the
    `cd /QIBM/Userdata/WebAS5/Base/<instance_name>/PortalServer/rootscripts`
    command.
4. Issue one of the following commands depending on your action:
    - startWorkplaceServices.sh
    - stopWorkplaceServices.sh

Using standard WebSphere Application Server scripts

You can use standard WebSphere Application Server scripts to start and stop Workplace Services Express servers from the Qshell environment.

1. Start the QEJBAS5 subsystem by issuing the i5/OS Start Subsystem command:
    `STRSBS SBSD(QEJBAS5/QEJBAS5)`
2. Start the Qshell session by entering the `STRQSH` command.
3. Enter the `cd /QIBM/Proddata/Webas5/pme/bin` command.
4. Issue the following commands to start your application servers for the Workplace Services Express instance:
    a. `startServer WebSphere_Portal –instance <instance_name>`
    b. `startServer server1 –instance <instance_name>`
5. Issue the following commands to end your application servers for the Workplace Services Express instance:
    a. `stopServer WebSphere_Portal -instance <instance_name> -username <username> -password <password>`
    b. `stopServer server1 -instance <instance_name> -username <username> -password <password>`

Setting up browser clients

See the following list for supported browsers:
- Microsoft Internet Explorer 6.0 SP1, Service Pack (SP) 2 on Windows 2000 and Windows XP with the Sun Java Runtime Environment (JRE) 1.4.2 or with Microsoft Java virtual machine (JVM) 1.1
- Mozilla 1.4 on Linux with JRE 1.4.2
- Mozilla 1.4 on Windows with JRE 1.4.2
- Mozilla Firefox 1.0.7 on Windows with JRE 1.4.2
- Mozilla Firefox 1.0.7 on Linux with JRE 1.4.2

Installing JRE 1.4.2

This section provides you with a step-by-step process for installing JRE 1.4.2:
1. Verify that the client browser is one of the supported browsers listed in the "Setting up browser clients" section. Click **OK** (see Figure 81).

Figure 81: Microsoft Internet Explorer V6.0 (a supported browser)

2. Download and install the JRE from the Sun Web site listed in the "Resources" section (see Figure 82).
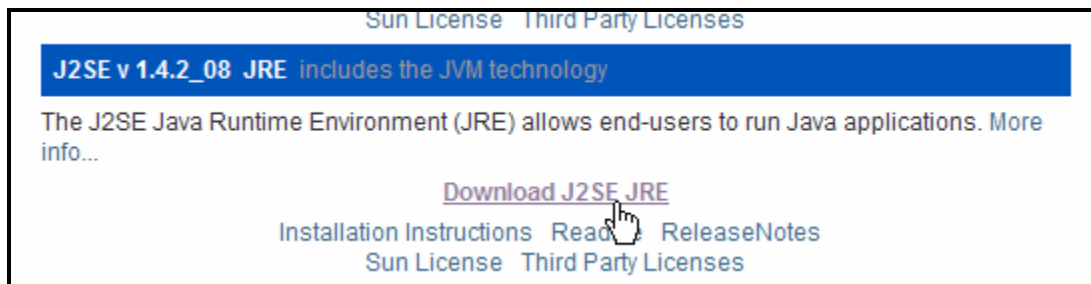
Figure 82: Download J2SE JRE

3. Verify that JRE 1.2.4 is configured in your browser. For Microsoft Internet Explorer 6.0, click **Tools** > **Internet Options** > **Advanced** and choose the Java setting (see Figure 83)**.**
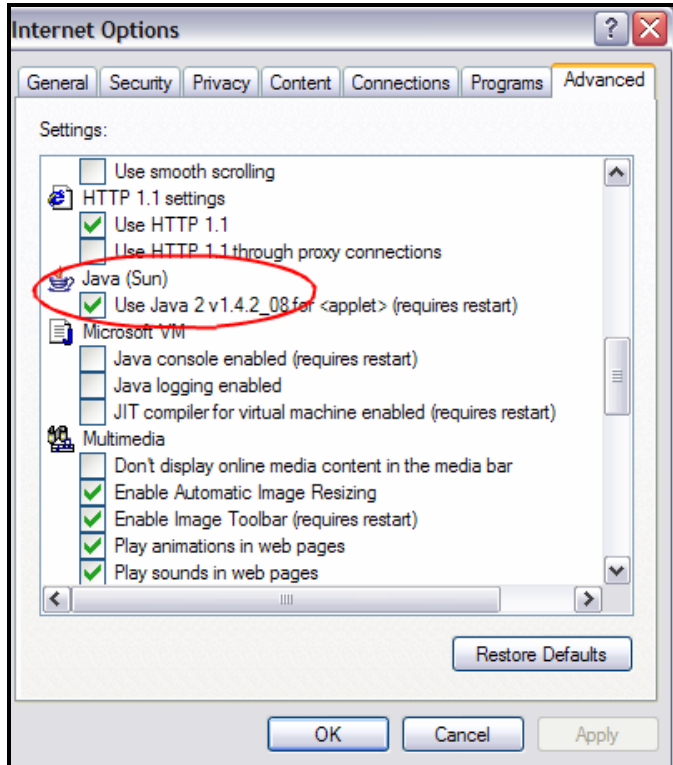
Figure 83: Verify browser configuration of JRE 1.4.2

Workplace tools for i5/OS

Workplace Services Express and Workplace Collaboration Services 2.6 includes a set of tools that help you manage the Workplace environment. These tools are included only on the System i package and cannot be run on other platforms.

The Workplace tools reside in the directory **/QIBM/ProdData/Workplace/WSE26/tools**. See the "Resources" section of this lab for references to information on how to use these tools.

The Workplace tools for i5/OS provide the following functions:

Back up and restore Workplace instances
Backing up Workplace Services Express on i5/OS involves saving an instance and all data associated with it. This data includes:
- The IFS directory of the instance
- The external HTTP server associated with the instance
- All Workplace Services Express database schemas associated with the instance
- Workplace Services Express for i5/OS provides scripts to simplify backup and recovery of Workplace Services Express instances

Use the `savInstance.sh` script to back up the Workplace environment in i5/OS. Use the `rstInstance.sh` script to restore the Workplace environment in i5/OS.

Restart Workplace instances automatically
For performance reasons, it is recommended that you restart your Workplace instances regularly. How often you need to restart an instance depends on your specific environment. Use the `resetWorkplaceInstance.sh` script to restart an instance on i5/OS automatically.

Autostart Workplace instances
After configuring a Workplace instance on i5/OS, you can optionally schedule the instance to start automatically whenever TCP/IP is started on the system using the `setautostart.sh` script.

Tips

Here are some tips to keep in mind:
- Disable any personal firewall or security software installed on the client or on the System i before starting the WebSphere or Workplace installation.
- Do not use the QSECOFR user profile to perform installation and configuration tasks.
- Immediately before you start the installation or configuration task, verify that the prerequisite PTF groups are in Installed status.
- After installing the WebSphere Application Server prerequisites, change the WebSphere Application Server V5.0 runtime usage limit by running the following i5/OS command:
    - CHGLICINF PRDID(5733WS5) FEATURE(5050) USGLMT(*NOMAX)
- Assign a dedicated IP address and host name to each Workplace instance running on i5/OS.
- Verify the TCP/IP configuration before starting the configuration of your Workplace instance. Check the following values:
    - IP address assigned to Workplace host is configured in CFGTCP option 1
    - Fully qualified host name dedicated to the Workplace instance is configured (CFGTCP option 12) in uppercase. Fully qualified host name of the format HOST.COMPANY.COM
        - Loopback host appears in CFGTCP option 10
        - 127.0.0.1 LOOPBACK
        - LOCALHOST
- If you use an existing user profile as the owner of the Workplace and Portal databases, verify that the *Maximum allowed storage* (*MAXSTG) value is set to ***NOMAX** in the user profile.
- For systems with less than 4.5 GB of RAM dedicated to the Workplace Services Express instance, change the initial heap size from 768 to 256.
- Install the latest PTF for 5722-DG1 before you start a new Workplace configuration. See the iSeries Group PTFs in the Reference section for information on the most current PTF groups.
- Read the IBM Workplace Services Express Version 2.6.x release notes for workarounds for known limitations and supplemental information on topics covered in the eServer iSeries Information Center.
- Search the knowledge bases for Workplace.
- The LDAP server that is integrated in i5/OS must be running on i5/OS V5R3 or later (IBM OS/400® V5R2 does not support an integrated LDAP server).
- LDAP problems: if you experience LDAP problems after migrating i5/OS V5R3 to i5/OS V5R4, contact System i support.
- Back up your Workplace instance immediately after initial configuration by using the savInstance.sh script that is shipped with the Workplace tools.
- Set the password expiration interval for the Workplace database user to *NOMAX. For example: CHGUSRPRF USRPRF(WSEDBUSER) PWDEXPITV(*NOMAX)
- Back up your LDAP server and Web Content Management databases (if you are using Web Content Management). The Workplace savInstance.sh tool does not back up LDAP and Web Content Management databases.

- If the Workplace configuration wizard in IBM Web Administration for i5/OS reports that the prerequisite licensed product is not installed but DSPSFWRSC shows that the product is installed, then do the following: Verify that the Version and Release of the licensed product is the same as i5/OS and that the language of the product matches the primary language on the system.
- If People Awareness stops working, restart the channel framework job.
- If an attempt to preview documents in Workplace results in the plugin getting loaded (instead of a simple HTML rendering of the document), the solution is as follows: Verify that the document conversion services (Stellent files) are correctly set up. For instructions, refer to **ibm.com**/support and search for TechNote 1244557.
- For new installations of Workplace Services Express 2.6 on i5/OS V5R4, if people awareness and instant messaging do not work on non-English systems (that is, where the job CCSID is not 37). do the following: Apply PTF 5733-WS5 SI24611 and SI24669. For instructions, refer to **ibm.com**/support and search for TechNote ☰ 4561.
- On i5/OS V5R4 systems, the HTTP plugin module does not start up if Secure Socket Layer (SSL) is enabled for Workplace Collaboration Services or Workplace Services Express. The reason is that the QTMHHTTP user profile is missing required access authority for IFS directories.
  - Add *RWX authority for QTMHHTTP to /QIBM/UserData/WebAS5/Base/<instance>/logs
  - Add *RX authority for QTMHHTTP to both of the following:
    /QIBM/UserData/WebAS5/Base/<instance>/ect/plugin-key.kdb
    /QIBM/UserData/WebAS5/Base/<instance>/ect/plugin-key.sth
- If the production version of Workplace Services Express 2.6 fails to start after 90 days and the following message appears in SystemOut.log: "The product IBM Workplace Services Express does not have a valid license key installed and the evaluation period has expired," refer to **ibm.com**/support and search for TechNote 1244063.
- If the HTTP server fails to start in i5/OS V5R4, Message ID MCH4433 entry appears in the HTTP Server job log).

i5/OS license expire message in WSE 2.6 production version

To fix this problem on existing WSE servers:
Copy files nodelock and wse.lic in /QIBM/UserData/WebAS5/Base/<instance>/version:

Steps to copy files:
1. Verify that the following files exist in the WSE 2.6 media image:
    WSEServer/nodelock
    WSEServer/wse.lic

2. Copy nodelock and wse.lic files in the server directory
    /QIBM/UserData/WebAS5/Base/<instance>/version

3. Restart your server for the changes to take effect.

To fix the product install:

Steps to copy files:

1. Verify that the following files exist in the WSE 2.6 media image:
    WSEServer/nodelock
    WSEServer/wse.lic

2. Create directory /QIBM/ProdData/Workplace/WSE2.6/WorkplaceServer/version/

3. Copy nodelock and wse.lic files in the server directory
    /QIBM/ProdData/Workplace/WSE2.6/WorkplaceServer/version/

Saving Directory Server (LDAP) information when using Directory Server for i5/OS

Directory Server stores information in the following locations:

- The database library (QUSRDIRDB by default), which contains the directory servers contents.
    Note: You can see which database library you are using on the Database/Suffixes tab of the IBM Directory Server Properties panel in the iSeries Navigator.
- The QDIRSRV2 library, which is used to store publishing information.
- The QUSRSYS library, which stores various items in objects beginning with QGLD (specify QUSRSYS/QGLD* to save them).
- If you configure the directory server to log directory changes, a database library called QUSRDIRCL that the change log uses.
- Configuration data is also stored in the following directory:
    /QIBM/UserData/OS400/Dirsrv/

If the contents of the LDAP directory change regularly, you should save your database library and the objects in it on a regular basis. You should also save the files in that directory /QIBM/UserData/OS400/Dirsrv/ whenever you change the configuration or apply PTFs.
You should also export the LDAP directory LDIF file and store it with the other LDAP backup objects.
To export the LDIF file from operations navigator:
- Expand your System i > **Network** > **Servers** > **TCP/IP**
- Right-click **IBM Directory Server** > Select **Tools > Export File**

Restarting the channel framework

- People Awareness stops working, try restarting the channel framework job by following these steps:
    1. Access the WebSphere administrative console.
    2. Click **Servers** > **Application Servers**.
    3. Click **WebSphere_Portal**.
    4. Click **SIP Services**.
    5. Click **Status**.
    6. Select **SIP Service**, then click **Stop**.
    7. Wait until the job QJVAEXEC in subsystem QEJBAS5 ends.
    8. Start the SIP Service.

i5/OS WebSphere Application Server V50 fails to install on some languages

If the primary language on the i5/OS system is NOT configured with one of the following languages, then Websphere Application server will fail to install the required language options.

2980 - Brazilian Portuguese
2950 - English Uppercase only
2924 - English
2938 - English Uppercase only DBCS
2894 - English DBCS
2928 - French

2940 - French MNCS
2929 - German
2939 - German MNCS
2932 - Italian
2942 - Italian MNCS
2962 - Japanese DBCS
2986 - Korean DBCS
2989 - Simplified Chinese DBCS
2931 - Spanish
2987 - Traditional Chinese DBCS
1. Start the QShell Interpreter by entering the following on an i5/OS command line:
STRQSH

2. Create a directory called WAS50LANG:
      mkdir /WAS50LANG
      cd /WAS50LANG

3. Verify that the following files exist on the i5/OS WebSphere Application Server installer media image:
      /WAS50/lang.tar.gz

4. Extract lang.tar.gz in the WAS50LANG directory on the System i server:

5. Verify you have the follwoing file in the WAS50LANG directory
cd /WAS50LANG
ls
/WAS50LANG/lang.tar

6. Enter the following commands to start the QShell Interpreter and then use the pax command to extract the language files:
      cd /WAS50LANG
      pax -rv -C 819 -f lang.tar

7. Enter the following commands to restore the language options in WebSphere Application Server:

      system 'CRTLIB LIB(QWASLANG)'
      system 'CRTSAVF FILE(QWASLANG/QWS50024)'
      system 'CRTSAVF FILE(QWASLANG/QWS50124)'
      system 'CRTSAVF FILE(QWASLANG/QWS50224)'
      system 'CRTSAVF FILE(QWASLANG/QWS50524)'

      system 'CPYFRMSTMF FROMSTMF("/WAS50LANG/2924/QWS50024.sav")
      TOMBR("/qsys.lib/qwaslang.lib/QWS50024.file") MBROPT(*REPLACE)'

      system 'CPYFRMSTMF FROMSTMF("/WAS50LANG/2924/QWS50124.sav")
      TOMBR("/qsys.lib/qwaslang.lib/QWS50124.file") MBROPT(*REPLACE)'

      system 'CPYFRMSTMF FROMSTMF("/WAS50LANG/2924/QWS50224.sav")
      TOMBR("/qsys.lib/qwaslang.lib/QWS50224.file") MBROPT(*REPLACE)'

      system 'CPYFRMSTMF FROMSTMF("/WAS50LANG/2924/QWS50524.sav")
      TOMBR("/qsys.lib/qwaslang.lib/QWS50524.file") MBROPT(*REPLACE)'

system 'RSTLICPGM LICPGM(5733WS5) DEV(*SAVF) RSTOBJ(*LNG) OPTION(1) LNG(2924) SAVF(QWASLANG/QWS50124)'

system 'RSTLICPGM LICPGM(5733WS5) DEV(*SAVF) RSTOBJ(*LNG) OPTION(2) LNG(2924) SAVF(QWASLANG/QWS50224)'

system 'RSTLICPGM LICPGM(5733WS5) DEV(*SAVF) RSTOBJ(*LNG) OPTION(5) LNG(2924) SAVF(QWASLANG/QWS50524)'

8. On an i5/OS command line, enter go licpgm option 10 and verify that the following WebSphere Application Server options are installed:

5733WS5   *BASE   WebSphere Application Server V5.0
5733WS5   1   WAS V5.0 Client development and runtime
5733WS5   2   WAS V5.0 Application server runtime
5733WS5   5   WAS V5.0 Network Deployment
5733WS5   10   WAS V5.0 ENTERPRISE ENABLEMENT
5733WS5   11   WebSphere Application Server Extensions

9. On an i5/OS command line, enter WRKPTFGRP and verify that the following PTF groups are installed:

OS Level: V5R3

Group PTF	Level	Description
SF99282	4	WebSphere Portal Express/Express Plus Service Pack
SF99287	18	WebSphere App Server (Base Edition)
SF99099	9	IBM HTTP Server for iSeries
SF99269	10	Java
SF99503	9	DB2 UDB for iSeries

OS Level: V5R4

Group PTF	Level	Description
SF99321	1	WebSphere Portal Express/Express Plus Service Pack
SF99317	2	WebSphere App Server (Base Edition)
SF99114	3	IBM HTTP Server for iSeries
SF99291	2	Java
SF99504	3	DB2 UDB for iSeries

HTTP Server Fails to Start (V5R4-MCH4433 in joblog)

The IBM WebSphere 5.0.2.x HTTP server plugin can sometimes get into a state where it is not compatible with the version of IBM HTTP Server (powered by Apache) that is on the system. The symptom of such an incompatibility for i5/OS V5R4 is that the IBM HTTP server will not start and the message MCH4433 is seen in the joblog. To correct this problem:

4. Determine which version of WebSphere is installed. Run the **versionInfo** script: /qibm/proddata/webas5/base/bin/versionInfo
5. Scroll down to the **Installed Product** section and make note of the value for Version.

6. Determine if the V5R4 compatible PTF is installed for the WebSphere version by typing one of the following commands:

   Version   Command
   5.0.2.17   DSPPTF LICPGM(5733WS5) SELECT(SI23981)
   5.0.2.15   DSPPTF LICPGM(5733WS5) SELECT(SI22454)
   5.0.2.14   DSPPTF LICPGM(5733WS5) SELECT(SI21195)
   5.0.2.13   DSPPTF LICPGM(5733WS5) SELECT(SI20060)

7. If the PTF is not on the system, install the PTF.
8. If the PTF is on the system do the following:
   a. At a Command Entry session enter
      WRKSRVPGM SRVPGM(QEJBAS5/QSVTIHSAH)
   b. Press **Enter**
   c. Select Option 5 to display.
   d. Press the **Enter** key until you see Display 3 of 10 in the upper right corner.
   e. Determine what is listed under Module. It will be MOD_APP_UT or MOD_APP_GA.
   f. If it is MOD_APP_UT, there could be a problem. Notify IBM Service.
   g. If it is MOD_APP_GA, then run the following commands.
      i. Create a save file:
         CRTSAVF FILE(QEJBAS5/QSVTBAK)
      ii. Save the current plugin to the save file:
         SAVOBJ OBJ(QSVTIHSAH) LIB(QEJBAS5) DEV(*SAVF) OBJTYPE(*SRVPGM)
         SAVF(QEJBAS5/QSVTBAK)
      iii. Restore the V5R4 plugin:
         RSTOBJ OBJ(*ALL) SAVLIB(QEJBAS5) DEV(*SAVF) OBJTYPE(*SRVPGM) +
         SAVF(QEJBAS5/QSVTAPUTSF)
      iv. Restart your HTTP server.

Appendix A: Cleaning up a Workplace Services Express installation

Here are the steps for cleaning up the system after a Workplace Services Express installation.

Removing a Workplace Services Express instance
(IBM Web Administration for i5/OS)

Follow these steps to remove a Workplace Services Express instance:

1. Access Web Administration for i5/OS at http://<System_i_model>:2001/HTTPAdmin
2. Select **All application servers** to display all servers (see Figure 84).
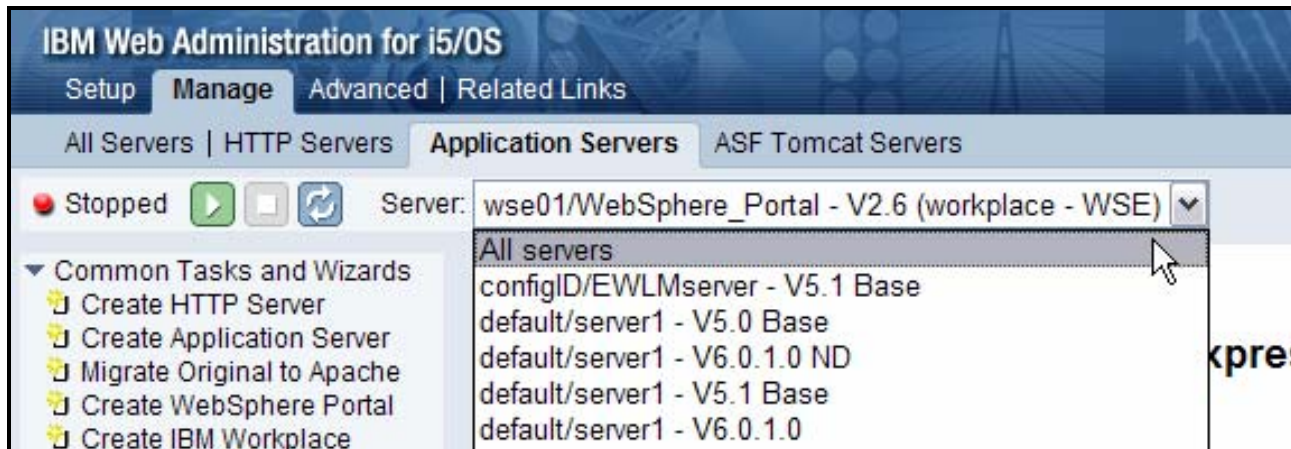
Figure 84. Select All servers

3. Select the WebSphere_Portal server for your Workplace Services Express instance and select **Delete** (see Figure 85).

Manage All Servers ⊘

All HTTP Servers	All Application Servers	All ASF Tomcat Servers

Data current as of May 14, 2006 7:42:16 AM.

	Server ▲	Version	Status	Address:Port	
○	configID/EWLMserver	5.1 Base	● Stopped	*:27802,27807,27811,27812,27813,27814	
○	**default/server1**	5.0 Base	● Running	*:37701,37702,37703,37704,37705	
○	default/server1	5.1 Base	● Stopped	*:27701,27702,27703,27704,27705,27706	
○	default/server1	6.0.1.0	● Stopped	*:2809,8880,9043,9060,9080,9443	
○	default/server1	6.0.1.0 ND	● Stopped	*:2809,8880,9043,9060,9080,9443	
○	ewlmsingle/EWLMserver	5.1 Base	● Stopped	*:27802,27807,27811,27812,27813,27814	
○	IWAWEB/IWAWEB	5.0 Express	● Stopped	*:59801,59806,59810,59811,59812	iSeries A
○	SYSINST/ADMIN	5.0 Express	● Stopped	*:6220,6225,6229,6230,6231	
○	SYSINST/ADMIN	6.0.1.0	● Stopped	*:4621,4625,4629,4630,4631,4632	
○	WAS60SVR/WAS60SVR	6.0.1.0	● Stopped	*:59101,59102,59103,59104,59105,59106	WAS60S
○	WFHATSLE/WFHATSLE	5.1 Express	● Stopped	*:59901,59906,59910,59911,59912,59913	WAS Ins
○	wpsd1/wpsd1	V5.0 (portal - express)	● Stopped	*:41000,41005,41009,41010,41011	Portal De
○	wse01/server1	V2.6 (workplace - WSE)	● Stopped	*:10010,10011,10013,10014,10022,10023,10024,10025	IBM Worl
⊙	wse01/WebSphere_Portal	V2.6 (workplace - WSE)	● Stopped	*:10000,10001,10009,10010,10011,10012,10024,10025	

Refresh	Start	Stop	Restart

Manage Details	Delete	Rename

Figure 85. Deleting a Workplace instance

4. Select the HTTP server and the local databases to delete with the application servers. Click
Next (see Figure 86).
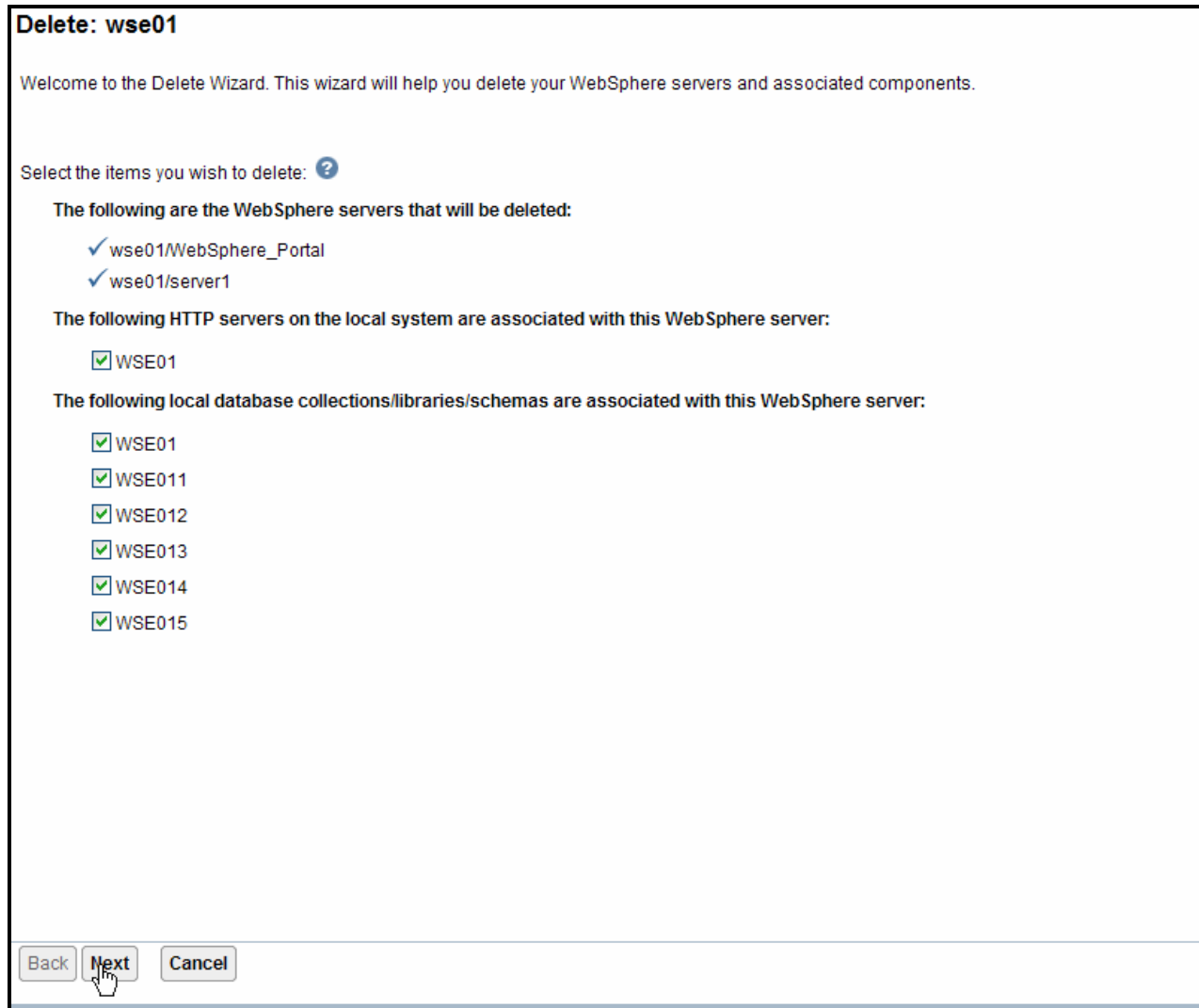
Figure 86. Deleting WebSphere servers and associated components

5. On the summary, click **Delete**. (Notice the Workplace Services Express instance is in the
deleting status and will be removed.)

Removing the Workplace Services Express instance using Qshell

Perform the following steps to remove the Workplace Services Express instance manually. However,
make sure you do not remove the Workplace Services Express product before first completing the
following steps:

1. Start a Qshell session:**QSH**
2. Enter `cd /QIBM/ProdData/Workplace/WSE26`
3. Enter `rmvwseinst.sh -instance <instance_name> -username <wasAdminUserId>`
`-password <wasAdminPassword>`

Removing the HTTP server using i5/OS command entry

To remove the HTTP server, follow these steps:
1. Log on to IBM Web Administration for iSeries i5/OS at
   http://*<System_i_model>*:2001/HTTPAdmin
2. Select **Manage -> All Servers -> All HTTP Servers**.
3. Stop your HTTP server.
4. Select your HTTP server ***<wse_instance>*** and click **Delete**.
5. Remove the HTTP instance entry from www.
6. From an i5/OS command entry screen, enter the `edtf 'www'` command.
7. At the left of the HTTP instance name for recursive delete, enter **9**, **Delete**.

Deleting the Workplace Services Express libraries using the i5/OS command entry

To delete the Workplace Services Express libraries, follow these steps:
1. From an i5/OS command entry session, display all the libraries associated with the
   Workplace Services Express instance: `wrklib wse*`. (**Note:** This list of libraries depends
   on naming convention used when the instance was created. See the summary printout to
   find the names.)
2. Select option **4** to delete.

If any of the above libraries cannot be deleted, you might need to IPL the system and try again.

Deleting the Workplace Services Express database user profile

Use the `Delete User Profile` command to delete the database user's user profile:
DLTUSRPRF USRPRF(*<your_wse_instance_DBUSR>*) OWNOBJOPT(*DLT)

Removing the Workplace Services Express product code

Perform the following steps to uninstall Workplace Services Express:
1. Start a Qshell session: `QSH`
2. Run the uninstallation script:
   `/qibm/proddata/workplace/wse26/workplaceserver/uninstall/uninstall.sh`
   `-silent`
3. Delete the product's library: DLTLIB QWSE26.

Appendix B: Basic tuning

This section provides a list of the settings that can be configured for basic tuning of a Workplace environment on a System i model. Use this list only for an initial tuning. Monitor the runtime environment and adjust the settings appropriately, based on specific enterprise environments.

In Workplace 2.6, Web application server and database initial tuning is done on i5/OS automatically at instance creation time.

You can use the modified IBM Tivoli® Performance Viewer to monitor server performance in real time and to adjust tuning values to specific workload and hardware resources. (The lwpperfviewer.bat file is located in the \QIBM\UserData\WEBAS5\Base\<instance> \WorkplaceServer\bin directory.) Running Tivoli Performance Viewer in real time introduces additional server overhead if high or maximum counter-tracking options are selected. Based on this monitoring feedback, expand the heavily used resources and consider reducing underused resources. For details about using the Tivoli Performance Viewer, see the Workplace Collaboration Services 2.6 Information Center that is located at http://publib.boulder.ibm.com/infocenter/jwphelp/v2r6m0/topic/com.ibm.wcs26.ic.doc/infocenter/i_mont_c_sys_mont.html.

Important note: Tables 3 through 11 refer to *memory constraint system*. In the context of performance-tuning recommendations for Workplace, a *memory constraint system* is a system with less than 6 gigabytes of total memory or less than 4.5 gigabytes of memory that is dedicated to the Workplace Collaboration Services or Workplace Services Express instance.

System view		
System value	**Recommended value**	**Description**

QPRCMLTTSK	*1 or 2*	Controls whether to enable the individual symmetric multiprocessors (SMPs) to concurrently run multiple instruction streams. Each instruction stream belongs to separate tasks or threads. When enabled, each individual processor is concurrently running multiple tasks. The effect of its use likely increases the performance capacity of a system or improves the responsiveness of a multithreaded application. Running multiple instruction streams at the same time does not improve the performance of any given task. Changes to the system value do not take effect until the next IPL. You can set the parameter as follwos:
		
		`i5/OS Command Entry > CHGSYSVAL SYSVAL(QPRCMLTTSK)`
		`VALUE('1')`
		
		Note: See APAR II13981: *The default setting of the i5/OS system value QPRCMLTTSK might be incorrect for some i5/OS V5R3M0 installations* at: www-912.ibm.com/n_dir/nas4apar.nsf/0/a4eaa9d8cb2ab5dd86256f690056c078?OpenDocument

QMAXACTLVL	**NOMAX*	Specify the number of threads that can compete at the same time for memory and processor resources. For all active subsystems, the sum of all threads running in all memory pools cannot exceed the value you specify. If a thread cannot be processed because the activity level has been reached, the thread waits until another thread reaches a time slice or a long wait.
		You can set the parameter as follows:
		`i5/OS Command Entry > CHGSYSVAL SYSVAL(QMAXACTLVL)`
		`VALUE('0')`
		In iSeries Navigator, select your system and then select **Configuration and Service -> System Values -> Performance -> Memory Pools**.

QPFRADJ	At deployment set to: 3=automatic adjustment At run time, set to: 0=no adjustment	Specify when to automatically adjust memory pools and activity levels. Initially set QPFRADJ to **3** to determine the initial pool size. Change QPFRADJ to **0** after the Workplace instance is deployed. This prevents other pools from taking away memory from the pool where Workplace is running in (typically *BASE). Periodically monitor the faulting rates and make manual adjustments to the memory pool. You can to set the parameter as follows: **i5/OS Command Entry** > **CHGSYSVAL SYSVAL(QPFRADJ) VALUE('0')** In iSeries Navigator, select your system and then select **Configuration and Service** > **System Values** > **Performance** > **Memory Pools**
QMCHPOOL	Set the machine pool size so that the faulting rate is < 10 faults per second and > 0.4	Specify the size of the machine memory pool (System pool 1). A good guideline is for this value to be two times the machine pool "reserved size." If the faulting rate exceeds 10 faults per second, move more memory into the pool. How to set the parameter: `i5/OS Command Entry > WRKSYSSTS > "Pool size" for System Pool 1` In iSeries Navigator, select your system and then select **Configuration and Service -> System Values -> Performance -> Memory Pools**.
QBASPOOL	> 4.5 GB	Use this system value to specify the minimum size for the base memory pool. By default, Workplace instance's server jobs run in the *BASE pool. You can set the parameter as follwos: `i5/OS Command Entry > CHGSYSVAL SYSVAL(QBASPOOL) VALUE('450000')` In iSeries Navigator, select your system and then select **Configuration and Service -> System Values -> Performance -> Memory Pools**. **Note:** Systems with less than 4.5 gigabytes in the *BASE pool are considered memory constraint.
*Base pool size	Set the *BASE pool size so that the faulting rate is < 30 faults per second Minimum recommended value 4.5 GB for Workplace Services Express and 6 GB for Workplace Collaboration Services	By default, Workplace jobs run in the *BASE storage pool. **Note:** If you are running Workplace on a separate pool other than *BASE, apply these guidelines to the memory pool assigned to the subsystem where Workplace is running. You can set the parameter as follows: **i5/OS Command Entry -> WRKSHRPOOL**. In iSeries Navigator, select your system and then select **Configuration and Service -> System Values -> Performance -> Memory Pools**. **Note:** As you tune this parameter, verify that the disk usage is less than 30 to 40% and that the memory-fault rate is under 100 pages per second.

QBASACTLVL	*> 570* *Increase the activity level if the rate of transitions from wait-to-ineligible is approaching the rate of active-to-wait*	The maximum number of eligible threads that can compete at the same time for storage in the base storage pool. If the activity level is too low, the threads can make the transition to the ineligible condition. If the activity level is too high, excessive page faulting can occur. 1. Enter `WRKACTJOB`. 2. Press F11 twice to display thread data for all jobs running in the *BASE pool. 3. Add the number of all the threads plus 15%. 4. Set the value calculated in step 3 as the activity level for the pool (you can also see the activity level WRKSYSSTS or WRKSHRPOOL). **Note:** If Workplace runs on a separate pool other than *BASE, apply these guidelines to the memory pool assigned to the subsystem where Workplace is running. You can set parameter as follows: **i5/OS Command Entry -> CHGSYSVAL SYSVAL(QBASACTLVL) VALUE(1920)** In iSeries Navigator, select your system and then select **Configuration and Service -> System Values -> Performance -> Memory Pools**.
Expert cache	*Enabled*	Expert cache is an operating system function. Using it can improve performance if your application accesses data sequentially. You can set the parameter as follows: **i5/OS Command Entry -> WRKSYSSTS,** press F11 for paging data, then replace `*FIXED` with `*CALC`.

Table 2. System view: System value

Memory tuning	Recommended value	Description
Pool size monitoring	*> 6 GB RAM*	Workplace runs by default in the *BASE pool (System Pool 2 in WRKSYSSTS). By default, there are two other memory pools: Pool 3 (5% of memory allocation) for interactive workloads and Pool 4 (1% of memory allocation) for spool. If you do not need the interactive or spool pools, change the default minimum memory settings as follows: 1. Select **WRKSHRPOOL** and press F11. 2. Change the minimums and maximums for ***INTERACT** and ***SPOOL** to lower values. 3. Press Enter. **Note:** If you are not utilizing interactive or spool services, you can lower these values to smaller amounts such as 0.5 and 0.05, respectively.

Table 3. Memory tuning

Disk tuning	Recommended value	Description
Disk utilization	*< 30 to 40%*	To determine if disk is a bottleneck on your System i model, look at the disk usage of each individual disk unit. It is important that no one disk arm exceeds the 30% busy. 2757 and 2780 I/O adapters can go up to 40% busy even when lower usage is recommended. 1. Select **WRKDSKSTS**. 2. Look at the **%** Busy column. 3. Verify that % busy is less than 30 to 40%.

Table 4. Disk tuning

Machine setup	Recommended value	Description
Processors active	*Minimum 1 processor and L3 cache*	Number of processors dedicated to a Workplace instance. **Note:** Minimum is suggested for an iSeries 520 system. Server feature code 0904. LPAR configurations: Avoid partial processors at all costs and have an even number of processors, if possible.
DASD condition	*No degradation*	Look for any degraded disk drive on the system as follows: click **WRKDSKSTS** and press **F11.** The status must not be DEGRADED
Number of DASD arms	*> 8*	The number of disk drive arms on the machine needs to yield the recommended disk usage (less than 30 to 40% busy).
PTF group levels must be current	*i5/OS V5R3* *SF99530* *SF99287* *SF99503* *SF99269* *SF99282* *SF99099* *i5/OS V5R4* *SF99540* *SF99504* *SF99321* *SF99318* *SF99317* *SF99296* *SF99291* *SF99114*	Cumulative PTF package: ▪ WebSphere Application Server V5.0 (Base Edition) ▪ DB2 UDB for iSeries ▪ Java ▪ WebSphere Portal Express/Express Plus ▪ IBM HTTP Server for iSeries For latest group PTF levels available, see: www-912.ibm.com/s_dir/sline003.NSF/ GroupPTFs?OpenView&Start=1&Count=30&Expand=1#1

Table 5. Machine setup

TCP/IP configuration		
Setting	**Recommended value**	**Description**

Line speed	• *LINESPEED(*AUTO)*
	• *DUPLEX(*AUTO)*
		Line speed and duplex support.
		
		You can set the parameter as follows:
		`CHGLINETH LIND(<line_name>)`
		`LINESPEED(*AUTO) DUPLEX(*AUTO)`

MAXFRAME	• *1496 for < 1Gbit*
	• *8996 for 1 Gigabit Ethernet*
		Specifies the maximum frame size that can be transmitted and received on this line description.
		
		You can set the parameter as follows:
		`CHGLINETH LIND(<line_name>)`
		`MAXFRAME (8996)`

MAX MTU size	**LIND*	The maximum transmission unit (MTU) is the maximum number of bytes allowed in any datagram.
		
		You can set the parameter as follows:
		`CFGTCP option 1 (Interfaces) >`
		`MTU = *LIND`
		
		`CFGTCP option 2 (Routes) > MTU`
		`= (*IFC)`

TCPRCVBUF and TCPSNDBUF	*65536 (64K)*	Specifies what to allocate for the default receive and send buffer size.
		
		You can set the parameter as follows:
		`CHGTCPA TCPRCVBUF(65536)`
		`TCPSNDBUF(65536)`
		Note: You must restart TCP for this change to take effect.

Table 6. TCP/IP configuration

Web server tuning

Setting	Recommended value	Description

GZIP compression	*ON*
	
	Use with caution
		Typically, you set up your HTTP server to compress only outbound traffic, because the amount of data sent to a browser is much higher than the request data received from a browser. Unless your system is already CPU-bound, the benefit of reducing the size of data sent from the server to the browser outweighs the overhead that compression introduces for the CPU.
		
		Set this parameter to **ON** only if large amount of data is sent to the browser and if your system is not CPU-bound (your CPU usage is less than 60%). To set the parameter, paste the following directives to the end of your HTTP server's configuration file and then restart the HTTP server.
		
		`LoadModule deflate_module`
		`/QSYS.LIB/QHTTPSVR.LIB/QZSRCORE.SRVPGM`
		`AddType application/zip .jar`
		`SetOutputFilter DEFLATE`
		`SetEnvIf "User-Agent" "^." no-gzip`
		`SetEnvIf "User-Agent" "MSI[E].(5\.5|6\.0);" !no-gzip`
		`SetEnvIf "User-Agent" "^Mozilla/5.0" !no-gzip`
		`SetEnv gzip-only-text/html 1`
		`SetEnvIfNoCase Request_URI "\.(js|css)$" gzip-only-text/html=0`
		`# Uncomment out the following lines to log compression statistics to the deflate_log file`
		`#LogFormat "\"%r\" %{outstream}n/%{instream}n (%{ratio}n%%)" deflate`
		`#CustomLog logs/deflate_log deflate`
		`#LogMaint logs/deflate_log 7 0`
		`#DeflateFilterNote Input instream`
		`#DeflateFilterNote Output outstream`
		`#DeflateFilterNote Ratio ratio`
		
		(**Note:** Normally, this file is located at /www/<http instance name/config/httpd.conf.)

KeepAliveTimeout	*> 5 minutes (300 seconds)*	It can be helpful to increase the KeepAlive Timeout. Keep in mind that a higher KeepAlive Timeout can increase contention for HTTP server processes. If you are running out of HTTP processes, decrease this value. You can set the parameter as follows: **ServerProperties -> System Resources -> HTTP Connections(tab) -> Time to wait between requests**
KeepAlive	*Enabled*	Enables the use of a single TCP connection for multiple HTTP requests (persistent connections). Normally, each HTTP request uses a separate connection. Reusing a single connection reduces the connection open and close overhead, thereby improving performance for that client. You can set the parameter as follows: **Server Properties -> System Resources**, click the **HTTP Connections** tab and click **Allow persistent connections**
MaxKeepAliveRequests	*0*	This will allow an unlimited number of requests on a single TCP connection. You can set the parameter as follows: **Server Properties -> System Resources -> HTTP Connections -> Maximum requests per connection**
ThreadsPerChild	*> 300*	This specifies the maximum number of threads to process a request. Set the number of threads on the HTTP server to handle the maximum number of parallel clients that can connect simultaneously to the HTTP server. You can set the parameter as follows: **Server Properties -> General Server Configuration -> Number of threads to process requests**
Error logging	*Lowest level possible*	You can set the parameter as follows: **Server Properties -> Logging -> Error Logs -> Logging Level**
Access logging	*Disabled (if possible)*	You can set the parameter as follows: **Server Properties -> Logging -> Custom Logs**, then select **logs/access_log** and click **Remove** *or* Comment out the following configuration line in /www/<*Workplace_instance*>httpd.conf: `CustomLog logs/access_log combined`
Name Server Access	*OFF*	For each Internet transaction, the server accesses the name server for information (IP address and name translations). These accesses cause significant overhead (CPU time, communication I/O) and greatly reduce system capacity. You can set the parameter as follows: **Server Properties -> General Server Configuration -> DNS hostname lookups for logging, CGI, and SSI -> Do not perform DNS lookups**

Table 7. Web server tuning

In Workplace 2.6, Web application server and database initial tuning is done on i5/OS automatically at instance-creation time. You need to use the modified IBM Tivoli Performance Viewer to monitor the performance of the server in real time and adjust tuning values to their system's specific workload and hardware resources. (The lwpperfviewer.bat file is located in the \qibm\userdata\webas5\base\<instance>\WorkplaceServer\bin directory.) Running Tivoli Performance Viewer in real time can introduce additional server overhead if high or maximum counter-tracking options are selected. Based on this monitoring feedback, expand the heavily used resources and consider reducing underused resources. For details about using the modified Tivoli Performance Viewer, see the Workplace Collaboration Services 2.6 information center located at http://publib.boulder.ibm.com/infocenter/jwphelp/v2r6m0/topic/com.ibm.wcs26.ic.doc/infocenter/i_mont_c_sys_mont.html. The column "Set automatically at configuration time?" in Table 8 and Table 9 denotes the settings that are configured on i5/OS automatically when the instance is created.

Web application server tunning			
Settings	**Recommended value**	**Set automatically at configuration time?** **Initial tuning value**	**Description**
server1	*Not started*	*No*	This is the default application server for the Workplace instance. It is used only during the deployment of the instance. After the deployment is complete, you can end it. `/qibm/proddata/webas5/pme/bin/stopserver server1 –instance <workplace_instance> -username <was_admin_id> -password <was_admin_password>`
Cache loader	*Active*	*Yes* */qibm/userdata/workplace/WSE26/classloadercache.jar*	Using the i5/OS JVM cache for user-class loaders improves startup performance for classes that you load from a user-class loader. The cache stores the optimized Java program objects, which enables the JVM to reuse them. Reusing stored Java programs improves performance by avoiding both recreating the cached Java program objects and verifying the bytecode. You can set the parameter as follows: 1. Start Qshell: `STRQSH` 2. Make the directory `mkdir /cache`. 3. Create a temporary file: - touch /tmp/temp. 4. Create the cache loader .jar file: jar -cf /cache/classloadercache.jar /tmp/temp. 5. Remove the temporary file: - rm /tmp/temp. Log on to the WebSphere Application Server administrative console of your WebSphere _Portal server at http://<*workplace_host*>.<domain>:<port>/admin **Servers -> Application Servers -> WebSphere_Portal -> Process Definition -> Java Virtual Machine -> Additional Properties -> Custom Properties -> New ->** 1. **Name:** os400.define.class.cache.file **Value:** /cache/classloadercache.jar 2. **Name:** os400.define.class.cache.hours **Value:** 9999 3. **Name:** os400.define.class.cache.maxpgms **Value:** 40000 Restart the WebSphere_Portal server and verify the cache is active: dspjvapgm '/cache/classloadercache.jar' The **Java programs** value must be not zero.

| *Java virtual machine heap size* | *Start with:*

WebSphere_Portal Initial/max heap size = 768/0

Adjust from there; for larger systems you might need more. | **Yes** | The initial heap size must be tuned so that the garbage collector runs at a suitable interval; infrequently enough that it does not cause unnecessary overhead, yet often enough that the heap does not grow too large. The initial heap size recommended value for each server in the Workplace instance is:
• WebSphere_Portal – initial/maximum heap size = 768/0

Adjust the value as necessary to improve performance.

You can set the parameter as follows:
Log on to WebSphere Administrative Console:
Servers -> **Application Servers -> WebSphere_Portal**
-> Process Definition -> Java Virtual Machine
-> Initial/Max Heap Size=768/0

Note: For more details on tuning heap size for i5/OS refer to *Tuning Garbage Collection for Java and WebSphere on iSeries* at **ibm.com**/servers/eserver/iseries/perfmgmt/pdf/tuninggc.pdf

Note: If your model is memory constrain, set the initial heap size to 256 and watch the effect of this setting.

Observe the response time using an application monitoring tool such as Application Response Measurement (ARM). Observe throuput results with iSeries Performance Collection Services. Increase the heap size to 384, 512, and 768 and compare response time and throughput for each setting. Choose the heap size that renders optimal response time and throughput. |
| *Session timeout* | *The minimum value acceptable by users* | *No*
(default = 30 min) | The default value of Session Timeout is 30 minutes. Reducing this value to a lower number can help reduce memory consumption requirements, allowing a higher user load to be sustained for longer periods of time. Reducing the value can interfere with the user experience by forcing the user to be logged out more frequently.

You can set the parameter as follows:
Log on to WebSphere Administrative Console:
Servers -> Application Servers -> WebSphere Portal
-> Web Container -> Session Management
-> Session Timeout - Set Timeout |

Class garbage collection	-Xnoclassgc	Yes	Using the -Xnoclassgc parameter will allow for more class reuse, thus causing less garbage collections to occur. You can set the parameter as follows: **Servers -> Application Servers -> WebSphere_Portal** **-> Process Definition -> Java Virtual Machine** **-> Generic JVM arguments** **- {add} -Xnoclassgc** **Note:** For memory constraint machines, set the **-Xnoclassgc** parameter as recommended here. Observe the response time and throuput results. Turn off this parameter (remove **-Xnoclassgc**) and observe the response time and throuput results again. Choose the option that renders optimal response time and througput. **Attention:** Make sure you type this parameter exactly as shown. If you make a mistake your server will not start.
Servlet engine thread pool size Min/Max	50/50	Yes	In testing, 70 was used for both the minimum and maximum settings. Set this value to 50 and monitor the results using the modified (Workplace) version of Tivoli Performance Viewer. Increase this value if all the servlet threads are busy most of the time. Decrease this value if most of the servlet threads are idle most of the time. You can set the parameter as follows: Log on to WebSphere Administrative Console: **Servers -> Application Servers -> WebSphere Portal** **-> Web Container -> Thread Pool** **- Minimum size threads** **- Maximum size threads**

Data source connection pool size	**lwp25JDBC** **wpcp50JDBC** **wps50JDBC** *See "Description" column for recommended values*	50/50 50/50 50/50	Set Minimum Connections equal to **Maximum Connections** for all connection pools. Do not leave **Minimum Connections** at **1** for any connection pools on the System i model. You can set the parameter as follows: Log on to WebSphere Administrative Console: **Resources ->JDBC Providers -> lwp25JDBC -> Data Sources -> lwpApp -> Connection Pool -> Min/Max =50/50** **Resources -> JDBC Providers -> wpcp50JDBC -> Data Sources -> feedback5 -> Connection Pool -> Min/Max =30/30 -> wpcpdfds -> Connection Pool -> Min/Max =30/30** **Resources -> JDBC Providers -> wpcp50JDBC -> Data Sources (Version 4) feedbackDS -> Connection Pool -> Min/Max =30/30 persDS -> Connection Pool -> Min/Max =30/30 wcmDS -> Connection Pool -> Min/Max =64/64 Resources -> JDBC Providers -> wps50JDBC -> Data Sources -> wmmDS -> Connection Pool -> Min/Max =30/30 -> wps50DS -> Connection Pool -> Min/Max =50/50** **Note for memory-constraint systems:** 1. Change all minimum values to **10**. 2. Run the workload test or observe the application in production, use TPV to monitor JDBC connection pool usage. 3. Set the minimum to the average number of JDBC connections in use at the appropriate load. 4. If the average waiting thread count is > 0, increase the maximum connection pool size by the waiting thread count maximum value and observe the results.
Statement cache size	**lwpApp=100** **wps50DS=500** **wmmDS=500**	100 100 100	The Statement Cache must be increased when the connection pool size is increased. The statement cache can be monitored using the Tivoli Performance Viewer to check if it is large enough. For Statement Cache tuning information see **ibm.com**/servers/eserver/iseries/perfmgmt/pdf/stmntcache.pdf You can set the parameter as follows: Log on to WebSphere Administrative Console: **Resources -> JDBC Providers -> lwp25JDBC -> Data Sources -> lwpApp -> Statement Cache =100** **Resources -> JDBC Providers -> wps50JDBC -> Data Sources -> wmmDS -> Statement Cache Size = 500 -> wps50DS -> Statement Cache Size = 500**

Application server logging level	*Log error*	Yes	You can set the parameter as follows: Log on to WebSphere Administrative Console: **Servers -> Application Servers -> WebSphere Portal -> Logging and Tracing -> IBM Service Logs -> Message Filtering=Log error** **Servers -> Application Servers -> Logging and Tracing**
Edge Side Include (ESI) caching	*Enabled*	Yes	The Web server plug-in contains a built-in ESI processor. The ESI processor has the ability to cache whole pages, as well as fragments, providing a higher cache hit ratio. The cache implemented by the ESI processor is an in-memory cache, not a disk cache, therefore, the cache entries are not saved when the Web server is restarted. You can set the parameter as follows: 1. End the **WebSphere_Portal** server. 2. In /QIBM/UserData/WebAS5/base/<wcs_instance>/config/cells/plugin-cfg.xml, update the following property: `<Property Name="esiEnable" Value="`**true**`"/>` **Note:** ESI can not be enabled if Secure Sockets Layer (SSL) is enabled.
LDAP group and member ID map	*ibm-allGroups:member; ibm-allGroups: uniqueMember*	No	You can set the parameter as follows: Log on to WebSphere Administrative Console: **Security -> User Registries -> LDAP -> Advanced LDAP Settings -> Group Member ID Map**

Table 8: Web application server tuning

| Database tunning			
Settings	**Recommended value**	**Set automatically at configuration time?** **Initial tuning value**	**Description**
Database indexes	**Create Workplace database indexes**	Yes	Index usage can dramatically improve the performance of DB2 UDB SQL queries. You can set the parameter as follows: Determine the name of the portal schema specified in the WpsDbSchema property in the file /QIBM/UserData/WebAS5/Base/<instance>/PortalServer/ config/wpconfig.properties `WpsDbSchema=<WPS_schema>` From a 5250 session (requires 5722-ST1 DB2 Query Manager and SQL Development Kit to be installed on your system): 1. Sign on to your System i model as the portal database owner (or change the index ownership later). 2. Start SQL: STRSQL. 3. Set `schema =<WPS_schema>`. 4. Create the following indexes: create index IX2110D on prot_res (parent_oid, oid) create index IX2140B on lnk_user_role (role_inst_oid) create index lambr_idxfix1 on wmmlambr (WMMLAMBR_ID, MEMBER_TYPE) create index laasval_idxfix3 on wmmlaasval (WMMLAMBR_ID, WMMLAATR_ID) create index laasval_idxfix2 on wmmlaasval (WMMLAMBR_ID, HAS_CONTEXT) create index disresidx2 on DISCUSSIONRESOURCE (uri, parenturi,path) create index disresidx3 on DISCUSSIONRESOURCE (uri, rooturi, projectid,workspace) create index disres_midx2 on DISCUSSIONRES_M (uri, wpcpguid) create index metaidx4 on wpcpmetadata (wpcpguid, wpcpdeleted)

From iSeries Navigator:
1. Start iSeries Navigator.
2. Expand your System i model's connection -> **Databases** > ***<iSeries host>***
3. Under **Databases** -> **Run SQL Scripts,** right-click ***<iSeries host>***
4. Enter the following SQL statements:

(Note: Each statement below must end in a semicolon.)
set schema =<WPS_schema>;
create index IX2110D on prot_res (parent_oid, oid);
create index IX2140B on lnk_user_role (role_inst_oid);
create index lambr_idxfix1 on wmmlambr (WMMLAMBR_ID, MEMBER_TYPE);
create index laasval_idxfix3 on wmmlaasval (WMMLAMBR_ID, WMMLAATR_ID);
create index laasval_idxfix2 on wmmlaasval (WMMLAMBR_ID, HAS_CONTEXT);
create index disresidx2 on DISCUSSIONRESOURCE (uri, parenturi,path);
create index disresidx3 on DISCUSSIONRESOURCE (uri, rooturi, projectid,workspace);
create index disres_midx2 on DISCUSSIONRES_M (uri, wpcpguid);
create index metaidx4 on wpcpmetadata (wpcpguid, wpcpdeleted)
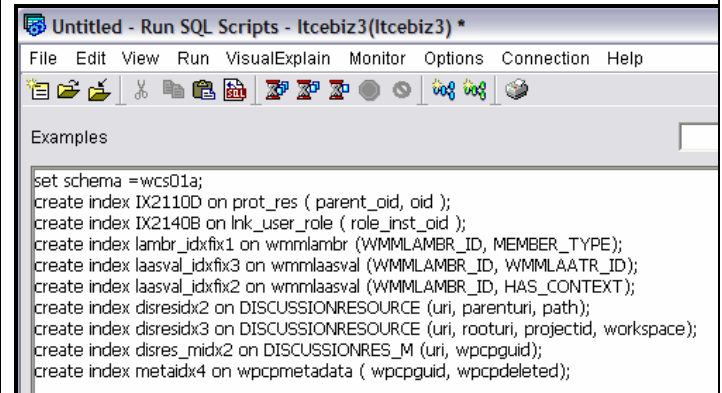
Click **Run** -> **All**

Note: When the indexes are created, change ownership to the Portal database user.

CHGOBJOWN OBJ(PORTALDB/IX2110D) OBJTYPE(*FILE) NEWOWN(*WSEDBUSER*)
where *<wsedbuser>* is your Workplace Services Express database user profile

Table 9: Database tuning

WebSphere Portal service properties			
Parameter	**Value used**	**Definition**	**Property file name**
public.expires	**3600 (seconds)**	Determines cache expiration time for the unauthenticated portal page	NavigatorService.properties
Persistent.session.option	**0**	Determines whether the user gets the option to resume the previous session. This function hurts performance because WebSphere Portal Server must write the user's state to its database when the user logs out or the user's session times out.	ConfigService.properties
default.interval bucket.*.interval	**Default values used**	Determines the interval (in seconds) to refresh one of the listed resource types from the database. If a bucket does not have an associated interval, the default is used. If there are certain resource types that are not changed often, you might want to increase the interval for that resource type to reduce the amount of database reads.	RegistryService.properties
uri.requestid	**False**	Determines the support of URL addressability. To enable URL addressability, set this property to false, which means IDs are not requested.	ConfigService.properties
Access control cache lifetimes	**3600 (seconds)**	This applies to all access control caches in the CacheManagerService.properties file.	CacheManagerService. properties

Table 10. WebSphere portal service properties

END OF LAB

Resources

These Web sites provide reference materials to supplement the information contained within this lab:

- IBM Publications Center
  www.elink.ibmlink.ibm.com/public/applications/publications/cgibin/pbi.cgi?CTY=US

- IBM Redbooks™ (http://www.ibm.com/redbooks)

    - Deploying IBM Workplace Services Express on the IBM iSeries Server, SG24-6664
- IBM Workplace Services Express product documentation
  ibm.com/developerworks/workplace/documentation/servicesexpress/

- IBM Workplace for iSeries Web site
  ibm.com/servers/eserver/iseries/software/workplace/index.html

- IBM Workplace Services Express Information Center
  http://publib.boulder.ibm.com/infocenter/wseic/v2r6/index.jsp

- IBM Workplace Services Express Version 2.6.x Release Notes
  http://publib.boulder.ibm.com/pvc/wse/260/en/release_notes.html

- IBM WebSphere Application Server home page
  ibm.com/servers/eserver/iseries/software/websphere/wsappserver

- IBM WebSphere Application Server V5.0 for iSeries
  ibm.com/servers/eserver/iseries/software/websphere/wsappserver/indexb50.html

Sizing System i models

- IBM eServer Workload Estimator
  www-912.ibm.com/wle/EstimatorServlet

- EMEA Techline (IBM intranet for IBM and IBM Business Partners, only)
  http://w3-5.ibm.com/support/emea/techline/index.shtml

- EMEA Techline sizing (IBM intranet for IBM and IBM Business Partners, only)
  http://w3-5.ibm.com/support/emea/techline/sizing.html

- Americas Techline (IBM intranet for IBM and IBM Business Partners, only)
  w3-03.ibm.com/support/americas/techline

- Americas Techline sizing (IBM intranet for IBM and IBM Business Partners, only)
  w3-03.ibm.com/support/americas/techline/sizewise.html

- Techline Access for Business Partners (IBM intranet for IBM and IBM Business Partners, only)
  ibm.com/partnerworld/techline

Ensuring the minimum required hardware

- Workplace Services Express Information Center
  http://publib.boulder.ibm.com/infocenter/wseic/v2r6/index.jsp?topic=/com.ibm.wse.doc/install/i_inst_c_requirements_i5os.html

Downloading Workplace Services Express 2.6 images

- Xtreme Leverage Portal (for IBM internal use, only)
  w3-103.ibm.com/software/xl/portal

- IBM Software Access Catalog (for IBM Business Partners)
  www.developer.ibm.com/isv/welcome/softmall.html

- IBM Passport Advantage (for IBM clients)
  ibm.com/software/howtobuy/passportadvantage

- Workplace Services Express evaluation version
  IBM Passport Advantage Web site, click **Trial and Betas**
  ibm.com/software/howtobuy/passportadvantage

- Evaluating Workplace Services Express
  http://publib.boulder.ibm.com/infocenter/wseic/v2r6/topic/com.ibm.wse.doc/wpf/inst_eval_ovr.html

Setting the time on the i5/OS operating environment
- iSeries Information Center Time Zone article
  http://publib.boulder.ibm.com/infocenter/iseries/v5r4/index.jsp?topic=/rzati/rzatitimezone.htm

Obtaining group PTFs and single PTFs
- Fix Central
  ibm.com/eserver/support/fixes/fcgui.jsp

- iSeries Group PTFs
  ibm.com/s_dir/sline003.NSF/GroupPTFs?OpenView&view=GroupPTFs

- iSeries Support
  ibm.com/servers/eserver/support/iseries/index.html

Workplace tools for i5/OS
- Backup and restore on i5/OS
  http://publib.boulder.ibm.com/infocenter/wseic/v2r6/index.jsp?topic=/com.ibm.wse.doc/infocenter/i_wadm_c_backup_inst_i5os.html

- Restart Workplace instances automatically
  http://publib.boulder.ibm.com/infocenter/wseic/v2r6/topic/com.ibm.wse.doc/infocenter/i_wadm_t_resetinst_i5os.html

- Autostart Workplace instances
  http://publib.boulder.ibm.com/infocenter/wseic/v2r6/topic/com.ibm.wse.doc/install/i_inst_t_autostart_i5os.html

Tips
- iSeries Group PTFs
  ibm.com/s_dir/sline003.NSF/GroupPTFs?OpenView&view=GroupPTFs

- Search IBM knowledge bases

    - http://publib.boulder.ibm.com/infocenter/wseic/v2r6/topic/com.ibm.wse.doc/infocenter/i_ovr_c_search_web.html
    - **ibm.com**/software/lotus/support/workplaceservicesexpress/support.html

Installing Sun Java Runtime Environment (JRE) 1.4.2
- Download and install the JRE from the Sun Web site
  java.sun.com/j2se/1.4.2/download.html

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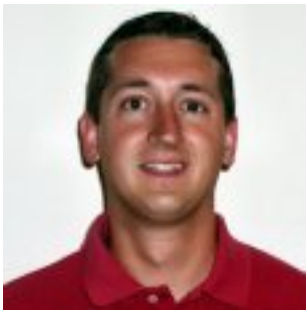
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