



IBM System i™

Session: 23A

2007 System i and AS/400 Connection Conference

System i Access for Web Configuration and Installation

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i want stress-free IT.
i want control.
i want an i.

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What is System i Access for Web?

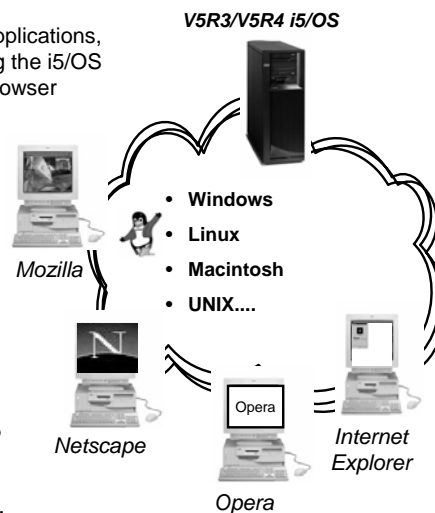
End users can leverage business information, applications, and resources across an enterprise by extending the i5/OS resources to the client desktop through a web browser

- Provides access to i5/OS through a browser

- 5250 access
- Access to database, integrated file system, printers, output queues, jobs
- Can run batch commands and send/receive messages


- It has the following advantages:

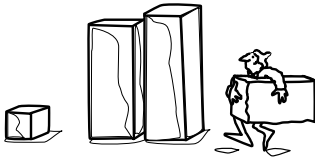
- Is System i based
- Requires only a browser on the client, no configuration required at desktop, no applets installed on desktop
- Uses industry standard protocols - HTTP, HTTPS and HTML



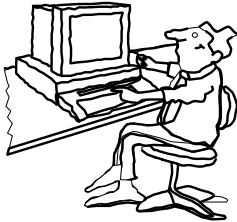
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Ordering & Packaging



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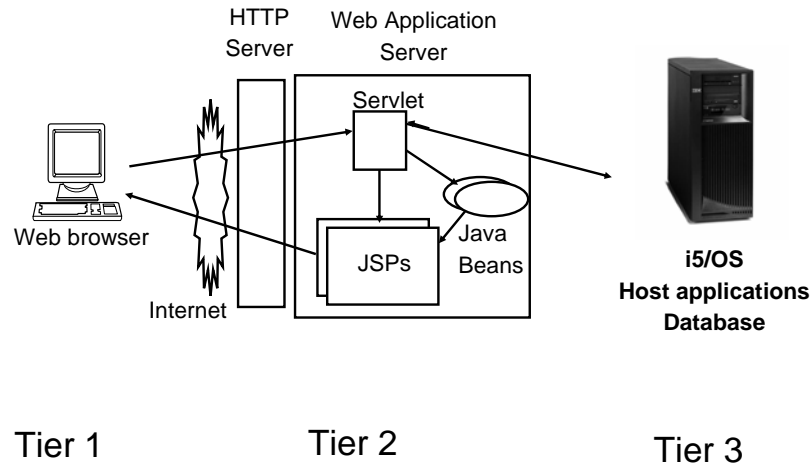
System i Access Family - Packaging

V5R4 5722-XW1 System i Access Family	V5R3 5722-XW1 System i Access Family
System i Access for Windows, 5722-XE1, V5R4	System i Access for Windows, 5722-XE1, V5R3
System i Access for Web, 5722-XH2, V5R4	System i Access for Web, 5722-XH2, V5R3
	HATS Limited Edition V5.0, 5724-F97-01
System i Access for Linux, 5722-XL1	System i Access for Linux, 5722-XL1, V1.10
System i Access for Wireless, 5722-XP1, V5R4	System i Access for Wireless, 5722-XP1, V5R3
	V5R3 customers not wanting to upgrade to i5/OS V5R4 but want the new V5R4 System i Access Family clients can order no-charge Feature No. 2648 of Product No. 5722-XW1

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First you need a web-serving environment



Pieces of the web-serving environment

- **HTTP Server (powered by Apache)**
 - Front door for your system into your web serving environment
 - HTTP/HTTPS (SSL)
 - Listens for web requests on a specific TCP/IP port
 - Routes web requests between an end-user browser and a web application sever
- **Web application server**
 - WebSphere Application Server
 - Provides a java virtual machine environment where web applications run
- **Web application**
 - System i Access for Web
 - Provides specific function that users access using a web browser
 - Deployed/installed within a web application server
- **WebSphere Portal/Workplace**
 - Web application deployed to WebSphere Application Server
 - Provides environment in which portlets are deployed and run.

Supported Web Application Servers

iSeries Access for Web servlet code can be used with any of the following web application servers:

- Integrated web application server – announced October 10, 2006
- WebSphere® Application Server V6.1 and V6.0 – Express for i5/OS
- WebSphere Application Server V6.1 and 6.0 Base and Network Deployment
- WebSphere Application Server V5.1 - Express for iSeries
- WebSphere Application Server V5.0 - Express
- WebSphere Application Server V5.1 and 5.0 Base and Network Deployment Editions
- ASF Tomcat

iSeries Access for Web portlet code can be used with any of the following portal servers.

- IBM Workplace Services Express V2.6 (V5R4 iSeries Access for Web)
- IBM Workplace Services Express V2.5
- WebSphere Portal for Multiplatforms V6.0
- WebSphere Portal for Multiplatforms V5.1.0.1
- WebSphere Portal Express for Multiplatforms V5.0.2
- WebSphere Portal Express Plus for Multiplatforms V5.0

Is your AS/400, iSeries, or System i ready?

Under 512Mb
Under 300 CPW

Bxx, Cxx, Dxx, Exx, Fxx
S10, S01, Pxx
S20 / #2161, #2163
100, 150
170 /
#2159, #2160, #2164, #2289, #2290, #2291, #2292, #2407,
#2408, #2409
200, 20S, 250
270 / #2422, #2423, #2424, #2248, #2452, #2454

3xx, 4xx
500, 510, 50S
53S / #2154
530 / # 2150, # 2151
600
620 / #2175, #2179, #2180, #2181
720 / #2061
820 / #2425, #2426, #2457, #2456

512Mb–1GB
300-500 CPW

S30 / #2257
S20 / #2170, #2165
170 / #2176, #2183, #2383, #2384, #2385, #2386
270 / #2250, #2431
53S / #2155
530 / #2150, #2151
600 / All
620 / #2175, #2179, #2180, #2181
720 / #2161
820 / #2425, #2426, #2456, #2457

WAS Express with
few concurrent
users

Over 1GB
And
500 CPW

SB1, SB2, SB3, S20(1), S30(1), S40, 170 / #2388
270 / #2252, #2253, #2432, #2434
53S / #2156, #2157
530 / #2153, #2162
730, 740, 800 / #2464
810, 825, 870, 890, i5 520, i5 550, i5 570, i5 595 / All

Complex web
applications with
many concurrent
users

http://www-1.ibm.com/servers/eserver/iseries/software/websphere/lay_foundation.html

Performance...???

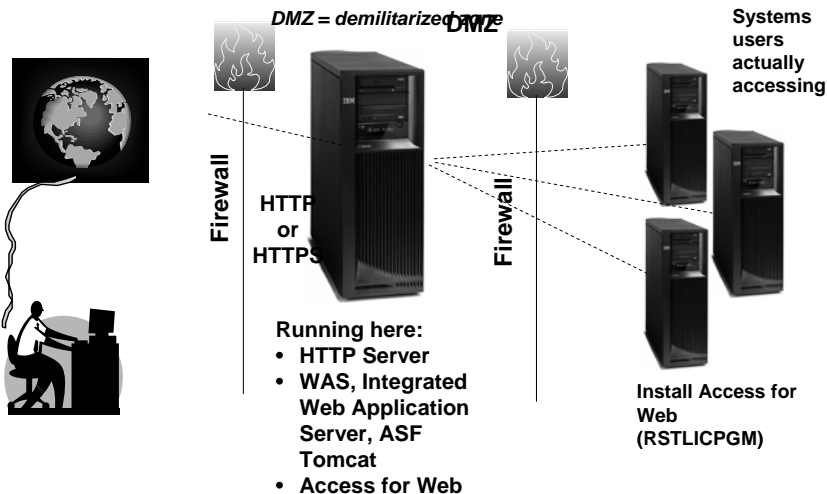
- Does running System i Access for Web affect performance?
 - Products like System i Access for Web don't put much load on i5/OS...
- How does the web application server affect performance?
 - If you have an older, under-powered System i5, then performance may not be good...if you have a newer, bigger System i5, then performance won't be an issue (unless you already are running your System i5 at maximum capacity).
 - Use the IBM Systems Workload Estimator to see what performance will be if WAS is added to your System i5 at: <http://www-912.ibm.com/wle/EstimatorServlet>
 - There is a Workload Estimator for WebFacing Workloads. iSeries Access for Web will be similar (depending on what functions of System i Access for Web are being used).
- Fine-tuning your web application server
 - If you are running WebSphere Application Server, refer to Chapter 4 of the Buying and Selling Guide for WAS. It has many good tips for getting WAS to perform optimally.
 - Go to the WebSphere Application Server web page at <http://www.ibm.com/servers/eserver/iseries/software/websphere/index2.html>

Performance Considerations...

Use the IBM eServer Workload Estimator at
<http://www-912.ibm.com/wle/EstimatorServlet>



Setting up your web application server



Only need to set up 1 web application server

Port Requirements Comparison

iSeries Access for Windows (5722-XE1)*

- Port 449 for Port Mapper
- Port 8476 (9476) for Sign-on
- Port 8470 (9470) for Central
- Port 8472 (9472) for Data Queues
- Port 8471 (9471) for Database
- Port 8475 (9475) for Remote Commands
- Port 8473 (9493) for Print
- Port 2001 (2010) for Web Admin
- Port 446 (448) for DDM
- Port 23 (992) for Telnet
- Port 137, 138 for NetServer
- Port 389 (636) for LDAP
- Port 5555 (5566) for Mgmt Central
- Port 53 if using DNS Server

iSeries Access for Web (5722-XH2)

- Port 80 (or any other port) for HTTP Server
- Port 443 (or any other port) for HTTPS Server

*See Information APAR I112227 for detailed information

Hardware Software Requirements



Client Browser Requirements

- These browsers have been tested with V5R4 iSeries Access for Web:
 - Firefox 1.0.2 (Windows, Linux)
 - Internet Explorer 6.0 with Service Pack 1 (Windows)
 - Opera 7.54 (Windows, Linux)
 - Mozilla 1.7 (Windows, Linux, AIX)
 - Other browsers that support the current HTTP and HTML specifications should work, but have not been tested with System i Access for Web.
 - These browsers have been tested with V5R3 iSeries Access for Web:
 - Netscape 4.7 (AIX)
 - Netscape 7.0 (Windows, Linux)
 - Internet Explorer 6.0 with Service Pack 1 (Windows)
 - Opera 7.11 (Windows, Linux)
 - Mozilla 1.3 and 1.4 (Windows, Linux)
 - Other browsers that support the current HTTP and HTML specifications should work, but have not been tested with System i Access for Web.
- **Set browser to allow 'Cookies'**
 - System i Access for Web requires that the web browser allow cookies. Set the cookie configuration option to allow cookies.

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i5/OS Software Requirements

Product Number	Product Name	Option	\$
5722-SS1	V5R3 System i Access for Web: V5R2 OS/400 or V5R3 i5/OS V5R4 System i Access for Web: V5R3 and later i5/OS	Base	w/HW
5722-SS1	i5/OS - Extended Base Directory Support	3	N/C
5722-SS1	i5/OS - AFP Compatibility Fonts	8	N/C
5722-SS1	i5/OS - Host Servers	12	N/C
5722-SS1	i5/OS QShell Interpreter	30	N/C
5722-SS1	If you plan to use Secure Sockets Layer (SSL)... • i5/OS Digital Certificate Manager • Cryptographic Service Provider	34 35	N/C N/C
5722-DG1	IBM HTTP Server for iSeries	Base	N/C
5722-JV1	Developer Kit for Java Developer Kit for Java Version 1.3 Developer Kit for Java Version 1.4 Developer Kit for Java Version 5.0 J2SE 5.0 32 bit (Check WebSphere doc for required version)	Base 5 6 7 8	N/C N/C N/C N/C
5722-JC1	Toolbox for Java	Base	N/C
5722-TC1	TCP/IP Connectivity Utilities for iSeries	Base	N/C

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i5/OS Software Requirements (continued)

Product Number	Product Name	Option	\$
5722-XW1	System i Access Family	Base	\$
5722-XH2	System i Access for Web • Ships with 5722-XW1 iSeries Access Family • V5R3 iSeries Access for Web runs on OS/400 V5R2 and i5/OS V5R3 • V5R4 iSeries Access for Web runs on i5/OS V5R3 and V5R4	Base	part of XW1
5722-IP1	IBM Info Print Server (Optional – enables best PDF output but is not required to view PDF output)	Base	\$

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i5/OS Software Requirements (continued)

Product Number	Product Name	Option	\$
5733-W61 5733-W60 5722-E51 5733-W51 5722-IWE 5733-WS5 5722-DG1 * * * *	<p><u>One, or more, of the following web servers</u></p> <ul style="list-style-type: none"> • WebSphere Application Server V6.1 for i5/OS (all three editions) • WebSphere Application Server V6.0 for OS/400 (all three editions) • WebSphere Application Server V5.1 - Express for iSeries • WebSphere Application Server V5.1 for iSeries (Base and ND) • WebSphere Application Server V5.0 - Express for iSeries • WebSphere Application Server V5.0 for iSeries (Base and ND) • integrated Web application server • Apache Software Foundation Tomcat • WebSphere Portal for iSeries (Express and Express Plus) V5.0.2.2 • WebSphere Portal Enable for Multiplatforms V5.1.0.1 • WebSphere Portal V6.0 • IBM Workplace Services Express V2.5, V2.6 	See documentation	

Refer to the documentation for the individual web serving environments additional requirements that may not be listed above.

- WebSphere <http://www.ibm.com/servers/eserver/iseries/software/websphere/wsappserver/>
- Portal V5.0.2.2 <http://publib.boulder.ibm.com/pvc/wp/502/smb/en/InfoCenter/index.html>
- Portal V5.1.0.1 <http://publib.boulder.ibm.com/infocenter/wp51help/index.jsp>
- Portal V6.0 <http://publib.boulder.ibm.com/infocenter/wpdoc/v6r0/index.jsp>
- Workplace V2.5 <http://publib.boulder.ibm.com/infocenter/wseic/v2r5/index.jsp>
- Workplace V2.6 <http://publib.boulder.ibm.com/infocenter/wseic/v2r6/index.jsp>
- ASF Tomcat <http://www.ibm.com/servers/eserver/iseries/software/http/>

System i Hardware Requirements

- Models/Processor features/Memory

Refer to the web application server documentation to determine what server models, processor features, and the memory requirements are for your web serving environment

- WebSphere Application Server
 - <http://www.ibm.com/servers/eserver/iseries/software/websphere/wsappserver/>
- ASF Tomcat
 - <http://www.ibm.com/servers/eserver/iseries/software/http/>
- WebSphere Portal Express/Express Plus for iSeries V5.0.2.2
 - <http://publib.boulder.ibm.com/pvc/wp/502/smb/en/InfoCenter/index.html>
- WebSphere Portal V5.1.0.1
 - <http://publib.boulder.ibm.com/infocenter/wp51help/index.jsp>
- WebSphere Portal V6.0
 - <http://publib.boulder.ibm.com/infocenter/wpdoc/v6r0/index.jsp>
- Workplace Services Express V2.5
 - <http://publib.boulder.ibm.com/infocenter/wseic/v2r5/index.jsp>
- Workplace Services Express V2.6
 - <http://publib.boulder.ibm.com/infocenter/wseic/v2r6/index.jsp>

- Server disk space

- 275MB	V5R3 System i Access for Web
- 470MB	V5R4 System i Access for Web

3 Options for setting up the Access for Web environment

1. **Integrated Web application server**
 - Simplest to set up
 - Preconfigured HTTP web server

2. **Express Runtime Web Environments**
 - All components provided in a single package
 - Greatly simplifies the complexity of the environment
 - Most automated
 - Running web environment when installation completes
 - Desktop icon linking to the deployed web environment

3. **Step by Step**
 - Greatest flexibility
 - Choice of WebSphere Application Server version
 - May already have components on your system



Integrated Web Application Server

- Simplest to set up
- Preconfigured HTTP web server



What is it, does System i Access for Web support it?

- What is the i5/OS integrated Web application server
 - A web application engine much like ASF Tomcat
 - Uses minimal system resources, similar to ASF Tomcat
 - Minimal effort by an Administrator to maintain
 - V5R4 is the last release i5/OS will contain ASF Tomcat
- How is it packaged
 - 5722-DG1 IBM HTTP Server for i5/OS
 - Available in the DG1 group PTF
 - V5R4 SF99114 level 6 or later
 - V5R3 SF99099 level x or later
- System i Access for Web support
 - Only V5R4 System i Access for Web can be used
 - V5R4 System i Access for Web can be installed and is supported on...
 - V5R3 i5/OS
 - V5R4 i5/OS

To use System i Access for Web within this environment

1. Stop the Web Administration for i5/OS
 - ENDTCPSVR SERVER(*HTTP) HTTPSVR(ADMIN)
2. Load/apply latest 5722-DG1 group PTF (review cover letters for any additional information)
 - V5R4 SF99114
 - V5R3 SF99099
3. Load/apply latest V5R4 System i Access for Web PTF
 - SI25551
4. Configure System i Access for Web
 - QSH
 - cd /QIBM/ProdData/Access/Web2/install
 - cfgaccweb2 -appsvrtype *INTAPPSVR
5. Start the Web Administration for i5/OS
 - STRTCPSVR SERVER(*HTTP) HTTPSVR(*ADMIN)
6. Start preconfigured HTTP web server
 - STRTCPSVR SERVER(*HTTP) HTTPSVR(IWADFT)
7. Open a browser to System i Access for Web using preconfigured HTTP:port
 - http://<system_name>:2020/webaccess/iWAMain
8. Done!

Integrated Web application server

Questions regarding
the integrated
Web application server
option?

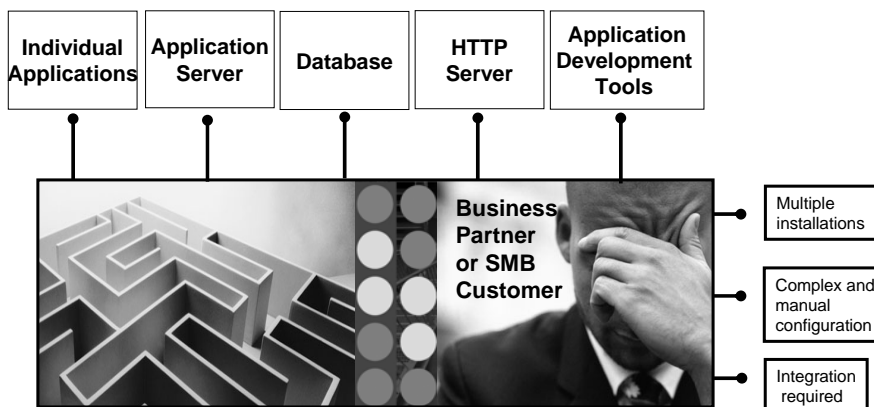


Web Enable Feature –
Express Runtime
Environment



What is the problem?

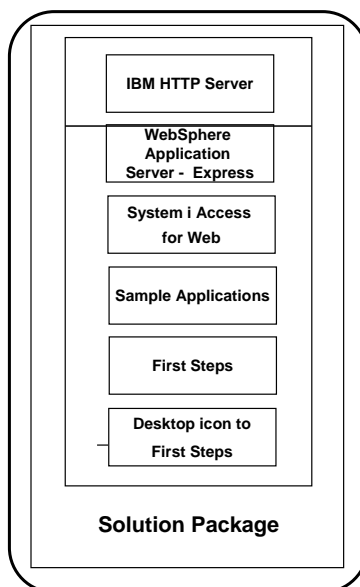
- The complexity of the web-serving environment
 - Several parts/pieces to install
 - Can be challenging to configure all the parts/pieces



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What is the solution?

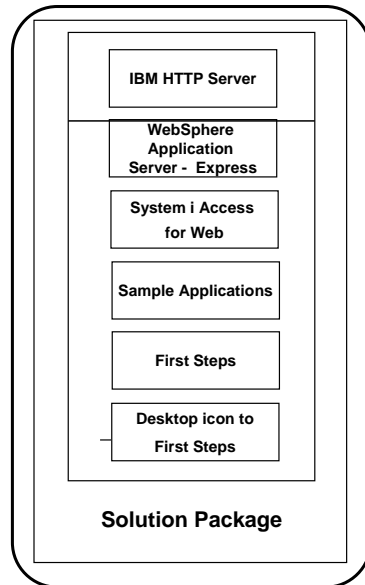
- Put all the parts/pieces into a single package
 - Middleware components
 - HTTP web server
 - WAS Express 6.0.2.9
 - V5R4 System i Access for Web
 - PTFs are included
 - Sample applications – modernizing an RPG application (flight400) using the following technologies:
 - HATS, WebFacing, Web Services
 - First Steps
 - Web page with links to System i Access for Web, Samples, web administration, Information
 - Getting Started Document
 - Deployment help text
 - Product licenses



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What is the solution? (continued)

- **Make the package easily deployable**
 - Easy to use wizard run from Windows workstation
 - Middleware is uploaded, installed/configured
 - System i Access for Web is set up
 - Sample applications are set up
 - FirstSteps webpage is deployed
 - Web-serving environment is ready for immediate use
 - Desktop icon to FirstSteps web page



Target Audience

- **V5R4 i5/OS customers and partners**
 - Anyone wanting/needing a simple way to setup web-serving on their i5/OS
- **Users of the following:**
 - System i Access for Web – end user web browser access to i5/OS resources
 - WDHT / HATS / WebFacing applications
 - J2EE web applications (JSF, JSP, servlets, EJBs, etc)
 - SOA applications (web services, including RPG/COBOL integration)
 - Demo of an application modernized using SOA, HATs and WebFacing
- **Partners**
 - Modify a similar solution to include their applications
 - Obtain SAT and source from PartnerWorld
 - Rebuild solution to include their application

Packaging/Ordering

- **5722-WE2 Express Runtime Web Environments**
 - Ships with all V5R4 i5/OS orders
 - Since October 2006
 - DVD only
 - All media contained in a single shrink wrapped package
 - Packaged along with WebSphere Application Server - Express product CDs
 - Label on package identifies the two products and their purposes
 - Products identified on media labels
 - Look for DVD labeled: Express Runtime Web Environments V1R1, contains everything you need

Can also be ordered separately

- No-charge feature of 5722-WE2 Web Enablement for i5/OS
 - Order feature 5905 for CDs
 - Order feature 5906 for a DVD

Installation/Setup Process

- **Read the ReadMe packaged with the product**
 - Verify requirements for Windows workstation and i5/OS system
- **From a Windows workstation, launch the deployment wizard**
 - Provide credentials
 - Specify i5/OS system to deploy
 - Name the HTTP web server, WebSphere profile/application server, ports
 - Optionally a backend i5/OS for System i Access for Web to connect
- **Deployment wizard runs**
 - Pushing middleware from workstation/media to the i5/OS system
 - Installs/configures middleware
 - Install/configures System i Access for Web, sample applications, FirstSteps web page
 - Creates desktop icon on Windows workstation
- **Deployment wizard complete**
 - Click desktop icon named Web_Enablement_Environment_V5R4M0
 - FirstSteps webpage provides links to web environment, System i Access for Web, sample applications
 - Administrator can then distribute web browser URL to users
 - GO LICPGM will list
 - 5733-SO1 Base Express Runtime Web Environments
 - 5733-SO1 1 Web Enablement Environment

Windows workstation software/hardware requirements

- Windows operating systems
 - Windows XP Professional SP2
 - Windows 2000 Server SP4
 - Windows 2000 Advanced Server SP4
 - Windows 2000 Professional SP3
 - Windows Server 2003, Standard Edition SP1
 - Windows Server 2003, Enterprise Edition SP1
- Web browser
 - Windows Internet Explorer 6 or later
 - Firefox 1.5 or later
- Windows workstation hardware requirements:
 - Minimum 512MB of memory; 1GB recommended
 - At a minimum, an Intel Pentium III class processor with a minimum clock speed of 600MHz. A Pentium IV class processor with a minimum clock speed of 1.2GHz is recommended
 - A local area network (LAN) connection
 - At least 1.5GB of free disk space

i5/OS Software/Hardware Requirements

- 5/OS V5R4 (5722-SS1)
 - option 3 - Extended Base Directory Support
 - option 8 - AFP(TM) Compatibility Fonts
 - option 12 - Host Servers
 - option 30 - QShell
- Software products
 - 5722-JV1 Java Developer Kit 1.4 - *BASE, option 5, option 6
 - 5722-JC1 Toolbox for Java
 - 5722-TC1 TCP/IP Connectivity Utilities
 - 5722-XW1 System i Access Family
 - 5722-QU1 Query - if you want to run reports using the HATS or WebFacing sample applications
- Recommended PTFs:
 - i5/OS Cumulative PTF Group SF99540 Level 6066 or later
 - Java Group PTF SF99291 Level 2 or later
 - DB2 Universal Database for iSeries Group PTF SF99504 Level 2 or later
- i5/OS hardware requirements:
 - It is recommended that you use the [IBM Systems Workload Estimator](#) to help estimate your hardware needs.

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Demonstration

After accepting the license agreements, this is the first page of the deployment wizard

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Demonstration (continued)

Deploy the web environment and create the desktop icon to the FirstSteps webpage

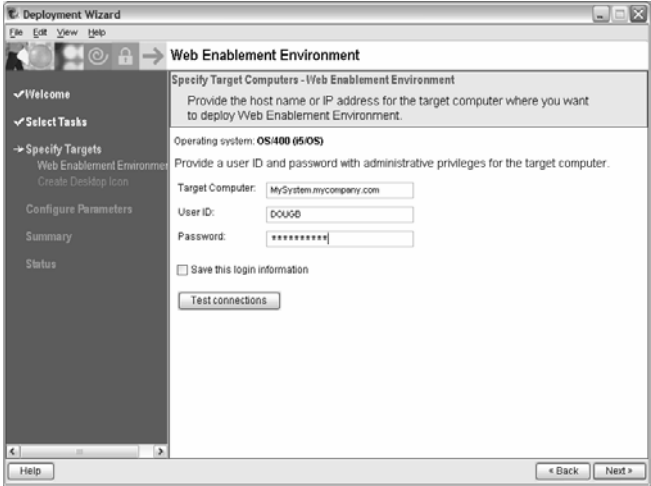
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Demonstration (continued)

Name of i5/OS system to deploy the environment to



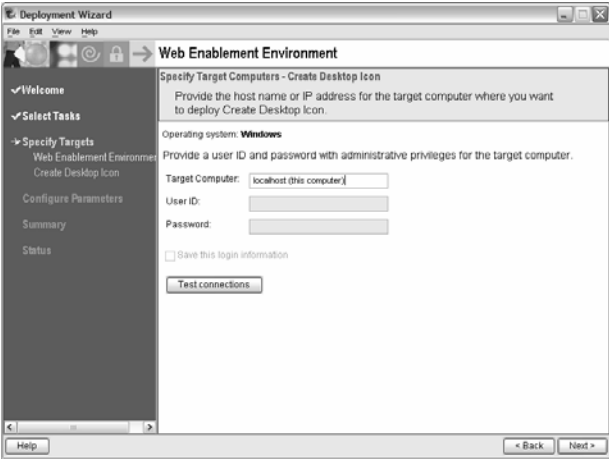
The screenshot shows the 'Web Enablement Environment' step of the Deployment Wizard. The left sidebar lists the steps: Welcome, Select Tasks, Specify Targets (selected), Configure Parameters, Summary, and Status. The main area is titled 'Specify Target Computers - Web Enablement Environment' and contains the following text: 'Provide the host name or IP address for the target computer where you want to deploy Web Enablement Environment.' Below this, it says 'Operating system: OS/400 (i5/OS)' and 'Provide a user ID and password with administrative privileges for the target computer.' The form fields are: Target Computer: MySystem.mycompany.com, User ID: DOUG0, Password: [masked]. There is a checkbox for 'Save this login information' which is unchecked, and a 'Test connections' button. At the bottom are 'Help', '< Back', and 'Next >' buttons.

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Demonstration (continued)

The deployment wizard displays this page for the desktop icon, click Next



The screenshot shows the 'Create Desktop Icon' step of the Deployment Wizard. The left sidebar lists the steps: Welcome, Select Tasks, Specify Targets (selected), Configure Parameters, Summary, and Status. The main area is titled 'Specify Target Computers - Create Desktop Icon' and contains the following text: 'Provide the host name or IP address for the target computer where you want to deploy Create Desktop Icon.' Below this, it says 'Operating system: Windows' and 'Provide a user ID and password with administrative privileges for the target computer.' The form fields are: Target Computer: localhost (this computer), User ID: [empty], Password: [empty]. There is a checkbox for 'Save this login information' which is unchecked, and a 'Test connections' button. At the bottom are 'Help', '< Back', and 'Next >' buttons.

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Demonstration (continued)

Name the HTTP web server and its port, name WebSphere profile/app server and its port range

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Demonstration (continued)

Deployment of the sample applications requires a security officer level user ID/password

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Demonstration (continued)

System i Access for Web can connect to the i5/OS system deploying to or another in the network

The screenshot shows the 'Web Enablement Environment' configuration window. The left sidebar lists steps: Welcome, Select Tasks, Specify Targets, Configure Parameters (selected), Summary, and Status. The main area is titled 'Configure Parameters - iSeries Access for Web configuration' and contains a 'Typical' tab with a text box for '* Target System' containing the value 'localhost'. Navigation buttons for '< Back' and 'Next >' are at the bottom right.

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Demonstration (continued)

Summary page, click Deploy all

The screenshot shows the 'Summary' page of the 'Web Enablement Environment' configuration. The left sidebar highlights the 'Summary' step. The main area, titled 'Summary Panel', lists the tasks to be deployed:

Task	Estimated time to deploy task
Web Enablement Environment Description: Select this task to deploy the Web Enablement Environment to your i5/OS system. Host names: MySystem.mycompany.com Previous Deployment: Unattempted	240 minutes
Create Desktop Icon Description: Select this task to create a desktop icon that links to the Web Enablement Environment. Host names: localhost (this computer) Previous Deployment: Unattempted	5 minutes

Estimated time to deploy all tasks: 245 minutes

To deploy all of the tasks that appear in the summary, click **Deploy all**.

Navigation buttons for '< Back' and 'Deploy all' are at the bottom right.

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Demonstration (continued)

Progress of the deployment

The screenshot shows the 'Deployment Wizard' window for 'Web Enablement Environment'. The progress bar is at 1%. The 'Estimated total time remaining' is 4 hours, 5 minutes. The 'Deployment messages' table shows two entries: 'Deploying: Web Enablement Environment' at 08:15:30 and 'Waiting to deploy: Create Desktop Icon' at 08:13:13. The left sidebar shows steps: Welcome, Select Tasks, Specify Targets, Configure Parameters, Summary, and Status (selected). Buttons at the bottom include 'Help', '< Back', and 'Stop Deployment'.

Time	Message
2007-03-23 08:15:30	Deploying: Web Enablement Environment
2007-03-23 08:13:13	Waiting to deploy: Create Desktop Icon

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Demonstration (continued)

Successful completion

The screenshot shows the 'Deployment Wizard' window for 'Web Enablement Environment' at 100% completion. The 'Estimated total time remaining' is 0 minutes. The 'Deployment messages' table shows two entries: 'Successfully deployed: Web Enablement Environment' at 10:09:46 and 'Successfully deployed: Create Desktop Icon' at 10:10:06. The left sidebar shows steps: Welcome, Select Tasks, Specify Targets, Configure Parameters, Summary, and Status (selected). Buttons at the bottom include 'Help', '< Back', and 'Close'.

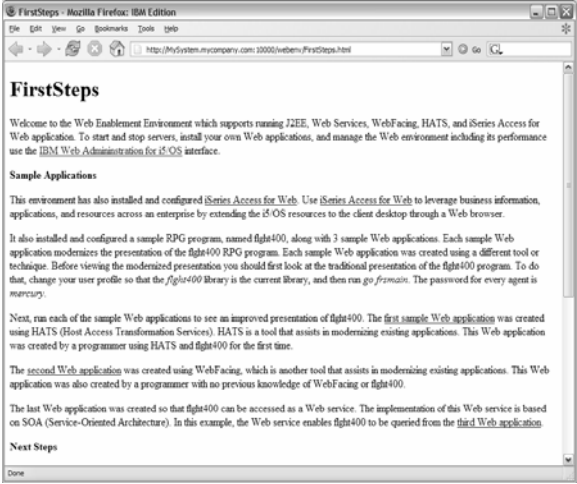
Time	Message
2007-03-23 10:09:46	Successfully deployed: Web Enablement Environment
2007-03-23 10:10:06	Successfully deployed: Create Desktop Icon

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IBM System i

Demonstration (continued)

Click the desktop icon named:
“Web_Enablement_Environment_V5R4M0”



FirstSteps

Welcome to the Web Enablement Environment which supports running J2EE, Web Services, WebFacing, HATS, and iSeries Access for Web application. To start and stop servers, install your own Web applications, and manage the Web environment including its performance use the [IBM Web Administration for i5/OS](#) interface.

Sample Applications

This environment has also installed and configured [iSeries Access for Web](#). Use [iSeries Access for Web](#) to leverage business information, applications, and resources across an enterprise by extending the i5/OS resources to the client desktop through a Web browser.

It also installed and configured a sample RPG program, named flight400, along with 3 sample Web applications. Each sample Web application modernizes the presentation of the flight400 RPG program. Each sample Web application was created using a different tool or technique. Before viewing the modernized presentation you should first look at the traditional presentation of the flight400 program. To do that, change your user profile so that the flight400 library is the current library, and then run `go flight400`. The password for every agent is mercury.

Next, run each of the sample Web applications to see an improved presentation of flight400. The [first sample Web application](#) was created using HATS (Host Access Transformation Services). HATS is a tool that assists in modernizing existing applications. This Web application was created by a programmer using HATS and flight400 for the first time.

The [second Web application](#) was created using WebFacing, which is another tool that assists in modernizing existing applications. This Web application was also created by a programmer with no previous knowledge of WebFacing or flight400.

The last Web application was created so that flight400 can be accessed as a Web service. The implementation of this Web service is based on SOA (Service-Oriented Architecture). In this example, the Web service enables flight400 to be queried from the [third Web application](#).

Next Steps

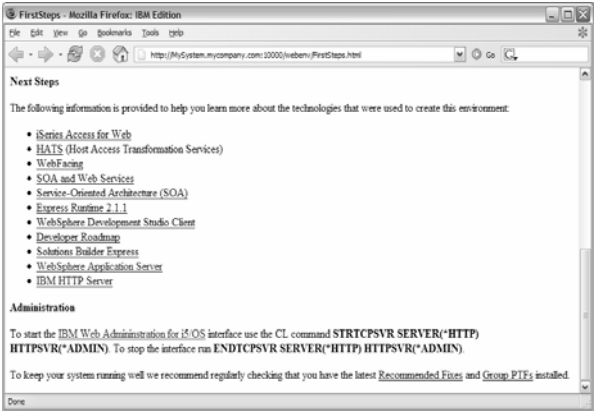
Done

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IBM System i

Demonstration (continued)

Click the desktop icon named
Web_Enablement_Environment_V5R4M0



Next Steps

The following information is provided to help you learn more about the technologies that were used to create this environment:

- [iSeries Access for Web](#)
- [HATS \(Host Access Transformation Services\)](#)
- [WebFacing](#)
- [SOA and Web Services](#)
- [Service-Oriented Architecture \(SOA\)](#)
- [Express Runtime 2.1.1](#)
- [WebSphere Development Studio Client](#)
- [Developer Roadmap](#)
- [Solutions Builder Express](#)
- [WebSphere Application Server](#)
- [IBM HTTP Server](#)

Administration

To start the [IBM Web Administration for i5/OS](#) interface use the CL command `STRTCPSVR SERVER(*HTTP) HTTPSVR(*ADMIN)`. To stop the interface run `ENDTCPSVR SERVER(*HTTP) HTTPSVR(*ADMIN)`.

To keep your system running well we recommend regularly checking that you have the latest [Recommended Files](#) and [Group PTFs](#) installed.

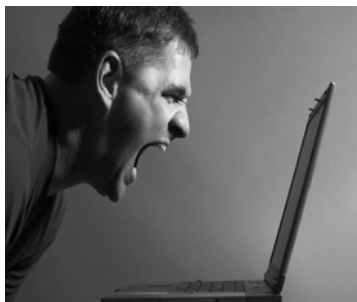
Done

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**Questions regarding the
Express Runtime
Web Environments
option?**



Step by Step



Formula for successful setup and configuration

- You need to do the following in this order:

1. Decide what web application server environment to run
2. Install System i Access for Web on your i5/OS system
3. Verify, load, apply any additional PTFs
 - Cumulative PTF package
 - WebSphere, HTTP web server for i5/OS
 - System i Access for Web
4. Setup web-serving environment
5. Configure System i Access for Web
6. Verify the installation and configuration

Information resources:

- These steps are detailed in System i Access for Web InfoCenter information
- 450047 LAB: System i Access for Web Installation and Configuration
- Examples at <http://www.ibm.com/servers/eserver/series/access/web/doc.html>

Decide what web application server environment to run



Decide what web application server environment to run

System i Access for Web can be deployed to a variety of web serving environments.

– Servlets

- WebSphere Application Server V6.1 for i5/OS (Express, Base, Network Deployment)
- WebSphere Application Server V6.0 for OS/400 (Express, Base, Network Deployment)
- WebSphere Application Server V5.1 - Express for iSeries
- WebSphere Application Server V5.1 for iSeries (Base and Network Deployment)
- WebSphere Application Server V5.0 - Express for iSeries
- WebSphere Application Server V5.0 for iSeries (Base and Network Deployment)
- ASF Tomcat
 - The ASF Tomcat included as part of the no-charge IBM HTTP Server for iSeries (5722-DG1)
 - ASF Tomcat PTFs are delivered within the IBM HTTP Server for iSeries Group HTTP PTFs.

– Portlets

- IBM WebSphere Portal – Express/Express Plus for Multiplatforms V5.0.2.2
- IBM WebSphere Portal Enable for Multiplatforms V5.1.0.1
- IBM WebSphere Portal V6.0
- IBM Workplace Services Express V2.5, V2.6

<http://www-03.ibm.com/servers/eserver/iseries/software/websphere/wsappserver/>

Servers > Midrange servers > Software > WebSphere Application Server for iSeries

WebSphere Application Server for iSeries

Features

WebSphere Application Server Version 6.0 for OS/400 is now available. To find out more about the new version or any other of the supported versions - please click on the links below:

Version 6.0

- [IBM WebSphere Application Server V6.0 for OS/400](#)
- [IBM WebSphere Application Server for Developers V6.0 for OS/400](#)
- [IBM WebSphere Application Server Network Deployment V6.0 for OS/400](#)
- [IBM WebSphere Application Server - Express V6.0 for OS/400](#)

Version 5.1

- [IBM WebSphere Application Server V5.1 for iSeries](#)
- [IBM WebSphere Application Server for Developers V5.1 for iSeries](#)
- [IBM WebSphere Application Server Network Deployment V5.1 for iSeries](#)
- [IBM WebSphere Application Server - Express for iSeries V5.1](#)

Version 5.0

- [IBM WebSphere Application Server V5.0 for iSeries](#)
- [IBM WebSphere Application Server Network Deployment V5.0 for iSeries](#)
- [IBM WebSphere Application Server - Express for iSeries V5.0](#)

Version 4.0


- [Advanced Edition](#)
- [Advanced Single Server Edition](#)

What's new

Please see the [What's new](#) page for more information on these new items.

- The WebSphere Application Server and WebSphere Application ...

Need directions?



- [iSeries Developer roadmap](#)
- [An Independent Analysis of the iSeries Developer Roadmap \(449KB\)](#)
- [The Business Benefits of iSeries Application Modernization \(183KB\)](#)
- [Get Adobe® Reader®](#)

Emerging Technology

- [Dynamic web site development for the non-technical business user.](#)

Pilot Pricing Program

- [IBM Software Pilot Pricing Program for IBM eServer i5 520 Systems](#)
- [Presentation overview](#)

Install System i Access for Web on your i5/OS system



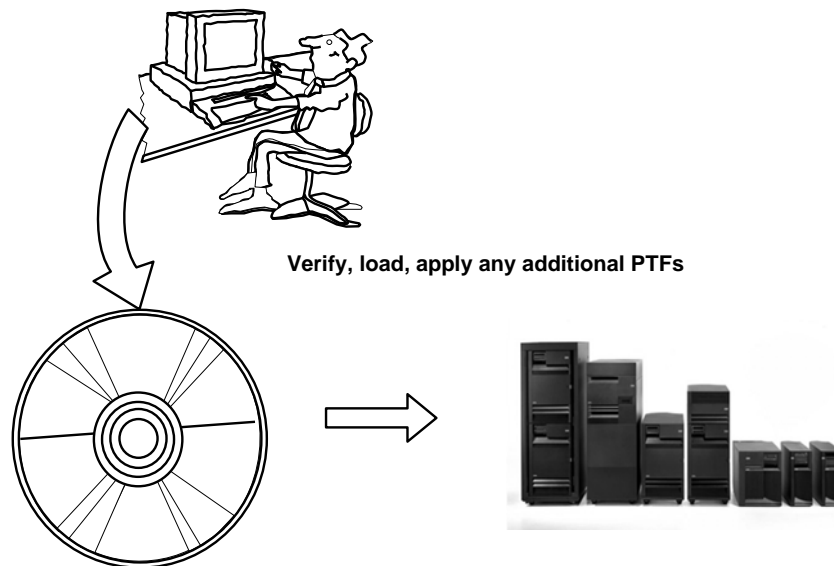
Install System i Access for Web on your i5/OS system



- **Installing System i Access for Web**
 - Use the RSTLICPGM command to restore (install) product 5722-XH2
 - RSTLICPGM LICPGM(5722XH2) DEV(OPT01) OPTION(*BASE)
- **The restore will...**
 - Create library QIWA2 and objects in QIWA2
 - Create file system directories
 - /QIBM/ProdData/Access/Web2/...
 - /QIBM/UserData/Access/Web2/...
 - Set basic ownership/authorities for library and file system objects
- **The restore will not...**
 - Make any changes to HTTP server configurations
 - Make any changes to web application server configurations
 - Enable use of System i Access for Web

Install System i Access for Web on your i5/OS system (continued)

- No coexistence between V5R2, V5R3, and V5R4 System i Access for Web
- If System i Access for Web is already installed on the i5/OS system...
 - Installing/upgrading to a later release will replace the installed version.
 - QIWA2/CFGACCWEB2 must be run after installing a newer release of System i Access for Web.
 - Running CFGACCWEB2 enables/deploys new functions.
 - The web application server must be restarted after CFGACCWEB2 is run.
 - Refer to the InfoCenter information for information on upgrading from a previous release to V5R4 System i Access for Web.



Verify, load, apply any additional PTFs

- Each component of the web application serving environment has PTFs
 - WebSphere Application Server
 - i5/OS Cumulative PTF package
 - HTTP web server
 - WebSphere Portal/Workplace Services Express
 - System i Access for Web

- PTFs for the above components should be verified and updated as needed

Verify, load, apply any additional PTFs (continued)

- WebSphere Application Server
 - <http://www.ibm.com/servers/eserver/iseries/software/websphere/wsappserver/>
 - Click the PTFs link, click the link for i5/OS release/WebSphere version

 - V5R4 i5/OS

• WRKPTFGRP SF99323	v6.1 for i5/OS
• WRKPTFGRP SF99312	v6.0 for OS/400
• WRKPTFGRP SF99311	v5.1 Express for iSeries
• WRKPTFGRP SF99308	v5.1 Base Edition
• WRKPTFGRP SF99309	v5.1 Network Deployment Edition

 - V5R3 i5/OS

• WRKPTFGRP SF99322	v6.1 for i5/OS
• WRKPTFGRP SF99301	v6.0 for OS/400
• WRKPTFGRP SF99275	v5.1 Express for iSeries
• WRKPTFGRP SF99285	v5.1 Base Edition
• WRKPTFGRP SF99286	v5.1 Network Deployment Edition
• WRKPTFGRP SF99272	v5.0 Express for iSeries
• WRKPTFGRP SF99287	v5.0 Base Edition
• WRKPTFGRP SF99288	v5.0 Network Deployment Edition

Verify, load, apply any additional PTFs (continued)

- i5/OS Cumulative PTF package
 - The WebSphere Application Server group PTF identifies an i5/OS Cumulative PTF package.
 - The i5/OS PTF package specified is the level the WebSphere group PTF was tested with.
 - You may be able to successfully run with an earlier or later cumulative PTF package.

Verify, load, apply any additional PTFs (continued)

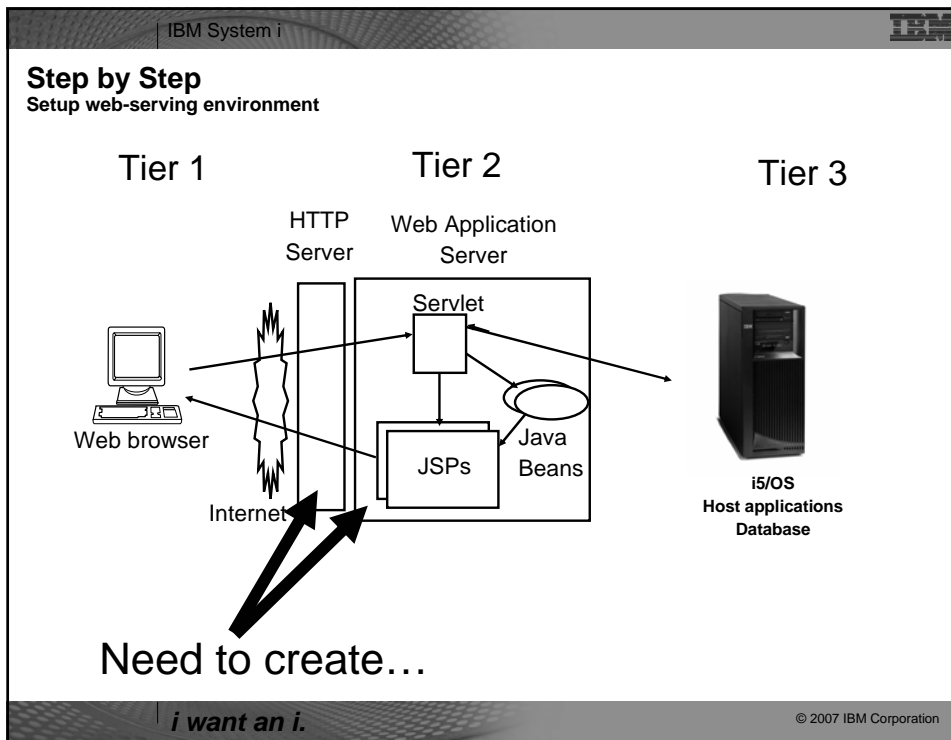
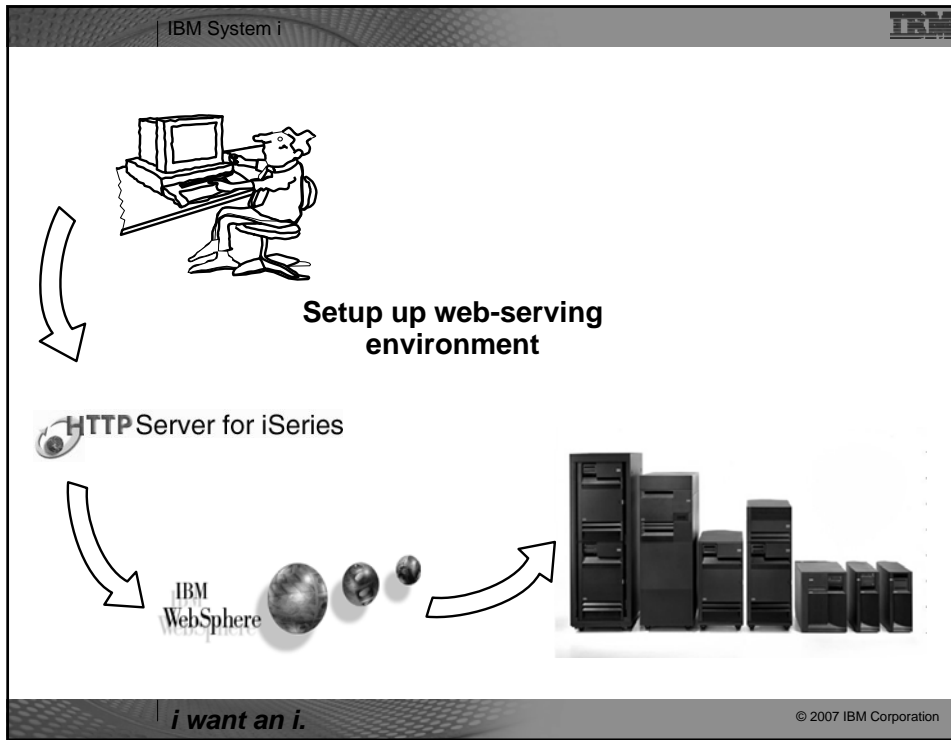
- HTTP web server
 - <http://www.ibm.com/servers/eserver/series/software/http>
 - Click the Support tab
 - V5R4 i5/OS
 - WRKPTFGRP SF99114
 - V5R3 i5/OS
 - WRKPTFGRP SF99099

Verify, load, apply any additional PTFs (continued)

- **WebSphere Portal/Workplace Services Express**
 - Refer to the Portal and Workplace Information Center documentation
 - IBM WebSphere Portal – Express/Express Plus for iSeries V5.0.2.2
 - <http://publib.boulder.ibm.com/pvc/wp/502/smbi/en/InfoCenter/index.html>
 - IBM WebSphere Portal V5.1.0.1
 - <http://publib.boulder.ibm.com/infocenter/wp51help/index.jsp>
 - IBM WebSphere Portal V6.0
 - <http://publib.boulder.ibm.com/infocenter/wpdoc/v6r0/index.jsp>
 - IBM Workplace Services Express V2.5
 - <http://publib.boulder.ibm.com/infocenter/wseic/v2r5/index.jsp>
 - IBM Workplace Services Express V2.6
 - <http://publib.boulder.ibm.com/infocenter/wseic/v2r6/index.jsp>

Verify, load, apply any additional PTFs (continued)

- **System i Access for Web**
 - <http://www.ibm.com/eserver/iseries/access/web/servicepacks.htm>
 - **V5R4** - SI25551
 - Contains support for WAS V6.1, Workplace Services Express V2.6, Portal V6.0, integrated web application server
 - Linux i386.rpm - SI24993
 - Linux ppc.rpm - SI24994
 - Linux ppc64.rpm - SI24995
 - Linux x86-64.rpm - SI24996
 - AFP Plugin Viewer - SI22919
 - **V5R3** - SI23771
 - Contains support for WAS V6.1, WAS V6.0, Portal V5.1.0.1, Workplace Services Express V2.5
 - Linux i386 rpm - SI24517
 - Linux ppc rpm - SI24518
 - AFP Plugin Viewer - SI14371
 - Always check the cover letter special instructions, often will have to run CFGACCWEB2 to enable changes.
 - Always check the website for latest PTF numbers



Setup web-serving environment (continued)

- HTTP web server
 - Front door for into your web serving environment
 - HTTP/HTTPS (SSL)
 - Listens for web requests on a specific TCP/IP port
 - An HTTP server is configured to "talk" to a specific web application server
 - Routes web requests between end-user browser and a web application sever

- WebSphere web application server (WAS)
 - Profiles (instances) are created containing a web application server
 - The web application server provides an environment for the deployment and management of web applications
 - Many different WAS versions can be installed and coexist on an i5/OS system
 - All web applications running within a web application server share the same name space.
 - You could create multiple profiles (instances) on a single i5/OS for the following reasons:
 - To create separate development environments for different developers. This allows them to have different versions of the same objects in their own name space.
 - To create separate development and test environments

Setup web-serving environment (continued)

- Use IBM Web Administration for i5/OS
 - Easy to use wizard that prompts for required information and does all the work
 - STRTCPSVR SERVER(*HTTP) HTTPSVR(*ADMIN)
 - `http://<system_name>:2001/HTTPAdmin`

IBM System i

Setup web-serving environment (continued)

- Setup → Create a New WebSphere Application Server

The screenshot shows the 'IBM Web Administration for iSeries' interface. On the left, a sidebar lists 'Common Tasks and Wizards' with 'Create Application Server' selected. The main content area displays the 'Create a New WebSphere Application Server' wizard step, which includes instructions on creating a new application server instance. A large black arrow points from the 'Create Application Server' option in the sidebar to the main content area.

IBM Web Administration for iSeries

Getting started - Create and learn about the servers needed to run your Web content.

- Create a New HTTP Server
- Create a New WebSphere Application Server
- Create a New WebSphere Portal
- Create a New IBM Workplace environment

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IBM System i

Setup web-serving environment (continued)

- Click Next

The screenshot shows the 'Create Application Server' wizard step. The main content area displays instructions on creating a new application server instance. At the bottom of the wizard, there are 'Next' and 'Cancel' buttons. A large black arrow points to the 'Next' button.

IBM Web Administration for iSeries

Create Application Server

Welcome to the Create Application Server wizard. This wizard creates a new application server to run Web applications with dynamic content, updates virtual host information and Web server plugin configuration for an external HTTP server of your choice, and creates all necessary JDBC providers and datasources required for the Web applications you choose to install.

- Virtual Hosts
- Install Application
- Data Sources and JDBC Providers

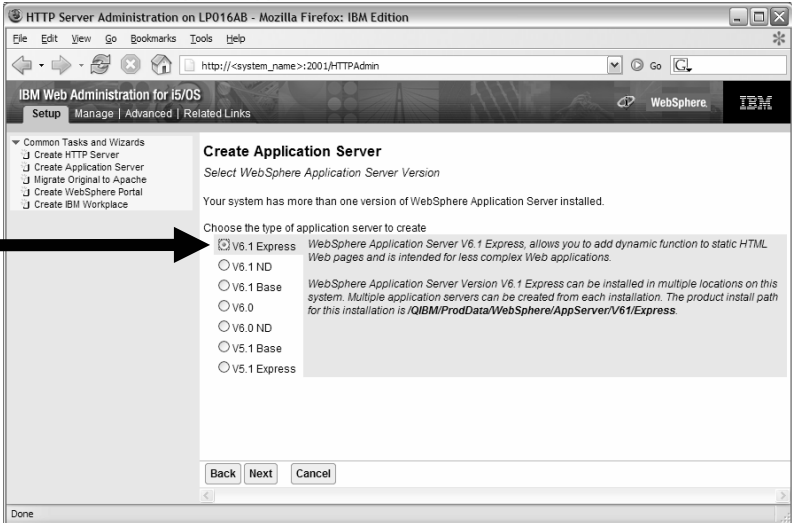
Next Cancel

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IBM System i

Setup web-serving environment (continued)

- Select version of WebSphere Application Server, click Next



The screenshot shows the 'Create Application Server' wizard in the IBM Web Administration console. The page title is 'Create Application Server' and the subtitle is 'Select WebSphere Application Server Version'. The text indicates that the system has more than one version of WebSphere Application Server installed. The user is prompted to 'Choose the type of application server to create'. The following options are listed:

- V6.1 Express: WebSphere Application Server V6.1 Express, allows you to add dynamic function to static HTML Web pages and is intended for less complex Web applications.
- V6.1 ND
- V6.1 Base
- V6.0
- V6.0 ND
- V5.1 Base
- V5.1 Express

A black arrow points to the 'Next' button at the bottom of the wizard. The 'Back' and 'Cancel' buttons are also visible.

Done

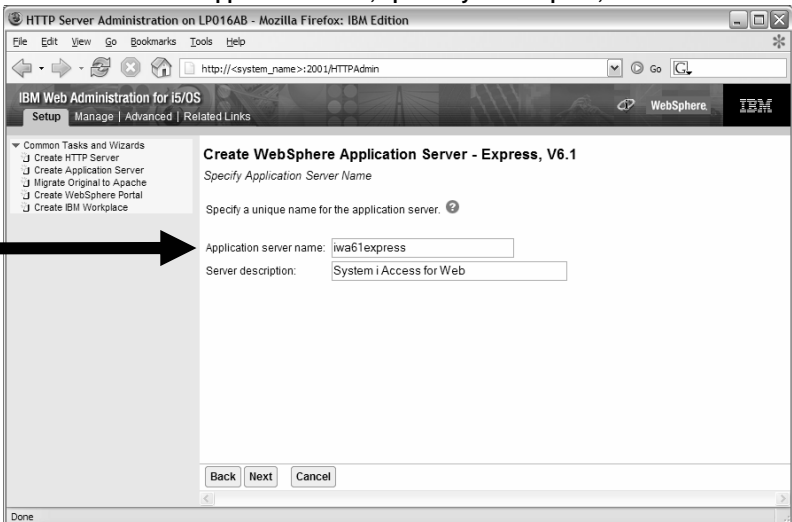
i want an i.

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IBM System i

Setup web-serving environment (continued)

- Enter a name for the web application server, optionally a description, click Next



The screenshot shows the 'Create WebSphere Application Server - Express, V6.1' wizard in the IBM Web Administration console. The page title is 'Create WebSphere Application Server - Express, V6.1' and the subtitle is 'Specify Application Server Name'. The user is prompted to 'Specify a unique name for the application server'. The following fields are shown:

- Application server name:
- Server description:

A black arrow points to the 'Next' button at the bottom of the wizard. The 'Back' and 'Cancel' buttons are also visible.

Done

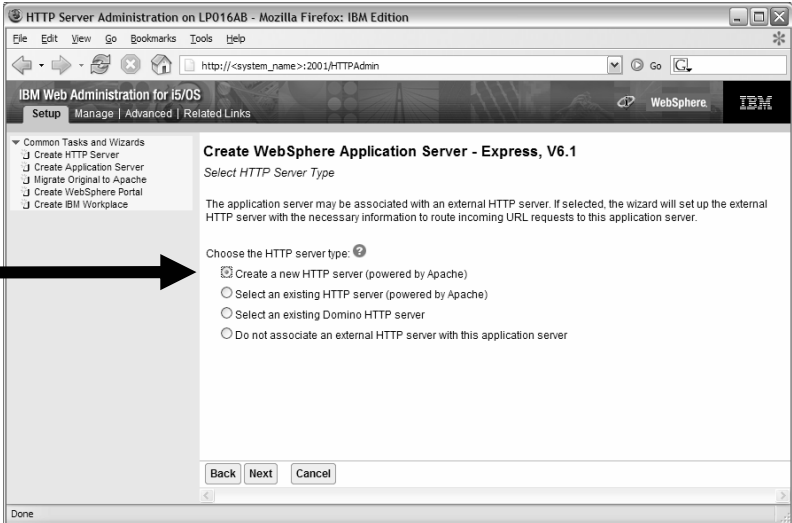
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Setup web-serving environment (continued)

- Select Create a new HTTP server, click Next



HTTP Server Administration on LP016AB - Mozilla Firefox: IBM Edition

http://<system_name>:2001/HTTPAdmin

IBM Web Administration for i5/OS

Setup | Manage | Advanced | Related Links

Common Tasks and Wizards

- ▶ Create HTTP Server
- ▶ Create Application Server
- ▶ Migrate Original to Apache
- ▶ Create WebSphere Portal
- ▶ Create IBM Workplace

Create WebSphere Application Server - Express, V6.1

Select HTTP Server Type

The application server may be associated with an external HTTP server. If selected, the wizard will set up the external HTTP server with the necessary information to route incoming URL requests to this application server.

Choose the HTTP server type:

- Create a new HTTP server (powered by Apache)
- Select an existing HTTP server (powered by Apache)
- Select an existing Domino HTTP server
- Do not associate an external HTTP server with this application server

Back Next Cancel

Done

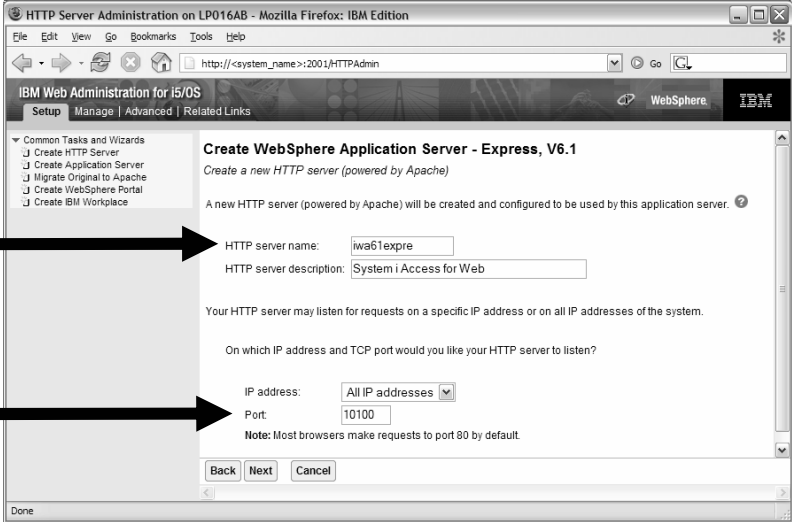
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Setup web-serving environment (continued)

- Enter name for HTTP server, optionally description, port for this HTTP web server, click Next



HTTP Server Administration on LP016AB - Mozilla Firefox: IBM Edition

http://<system_name>:2001/HTTPAdmin

IBM Web Administration for i5/OS

Setup | Manage | Advanced | Related Links

Common Tasks and Wizards

- ▶ Create HTTP Server
- ▶ Create Application Server
- ▶ Migrate Original to Apache
- ▶ Create WebSphere Portal
- ▶ Create IBM Workplace

Create WebSphere Application Server - Express, V6.1

Create a new HTTP server (powered by Apache)

A new HTTP server (powered by Apache) will be created and configured to be used by this application server.

HTTP server name:

HTTP server description:

Your HTTP server may listen for requests on a specific IP address or on all IP addresses of the system.

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

IP address:

Port:

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

Back Next Cancel

Done

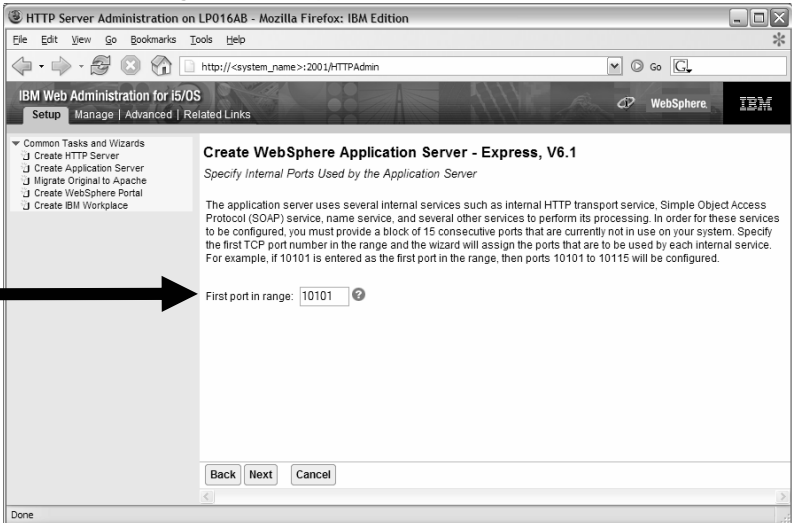
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Setup web-serving environment (continued)

- Enter first port in a range of available ports, click Next



HTTP Server Administration on LP016AB - Mozilla Firefox: IBM Edition

http://<system_name>:2001/HTTPAdmin

IBM Web Administration for i5/OS

Setup | Manage | Advanced | Related Links

Common Tasks and Wizards

- ▶ Create HTTP Server
- ▶ Create Application Server
- ▶ Migrate Original to Apache
- ▶ Create WebSphere Portal
- ▶ Create IBM Workplace

Create WebSphere Application Server - Express, V6.1

Specify Internal Ports Used by the Application Server

The application server uses several internal services such as internal HTTP transport service, Simple Object Access Protocol (SOAP) service, name service, and several other services to perform its processing. In order for these services to be configured, you must provide a block of 15 consecutive ports that are currently not in use on your system. Specify the first TCP port number in the range and the wizard will assign the ports that are to be used by each internal service. For example, if 10101 is entered as the first port in the range, then ports 10101 to 10115 will be configured.

First port in range:

Back Next Cancel

Done

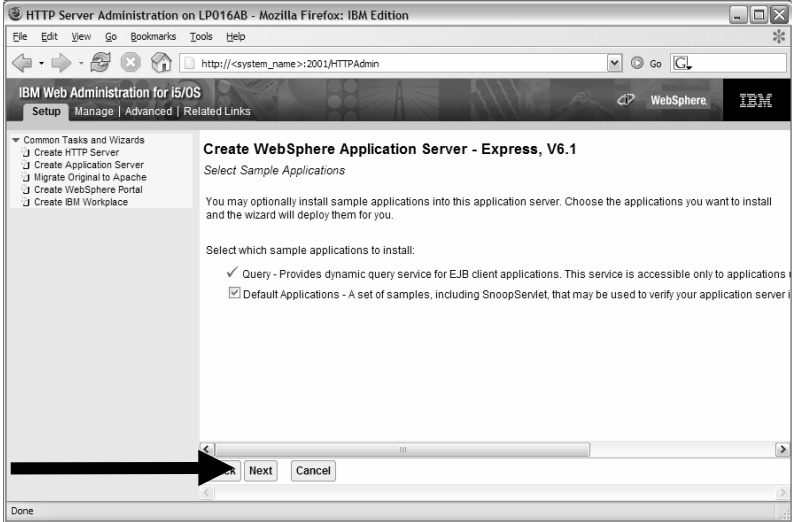
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IBM System i

Setup web-serving environment (continued)

- Click Next



HTTP Server Administration on LP016AB - Mozilla Firefox: IBM Edition

http://<system_name>:2001/HTTPAdmin

IBM Web Administration for i5/OS

Setup | Manage | Advanced | Related Links

Common Tasks and Wizards

- ▶ Create HTTP Server
- ▶ Create Application Server
- ▶ Migrate Original to Apache
- ▶ Create WebSphere Portal
- ▶ Create IBM Workplace

Create WebSphere Application Server - Express, V6.1

Select Sample Applications

You may optionally install sample applications into this application server. Choose the applications you want to install and the wizard will deploy them for you.

Select which sample applications to install:

- Query - Provides dynamic query service for EJB client applications. This service is accessible only to applications
- Default Applications - A set of samples, including SnoopServlet, that may be used to verify your application server

Back Next Cancel

Done

i want an i.

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IBM System i

Setup web-serving environment (continued)

- Information Center has an example for configuring SSO environment

HTTP Server Administration on LP016AB - Mozilla Firefox: IBM Edition

http://<system_name>:2001/HTTPAdmin

IBM Web Administration for i5/OS

Setup | Manage | Advanced | Related Links

Common Tasks and Wizards

- Create HTTP Server
- Create Application Server
- Migrate Original to Apache
- Create WebSphere Portal
- Create IBM Workplace

Create WebSphere Application Server - Express, V6.1

Configure Identity Token SSO for Web to i5/OS Access

Identity Token SSO is a mechanism where a single user signon action permits access to multiple i5/OS servers. This allows your Web-based interfaces to access i5/OS back-end applications without having to prompt for additional authentication. Identity Tokens are implemented using Enterprise Identity Mapping (EIM). EIM maintains the relationships between Web users and i5/OS user profiles. The application server creates a token for the servers configured to support Identity Tokens in this EIM Domain.

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

Done

i want an i.

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IBM System i

Setup web-serving environment (continued)

- Click Finish to create the web-serving environment

HTTP Server Administration on LP016AB - Mozilla Firefox: IBM Edition

http://<system_name>:2001/HTTPAdmin

IBM Web Administration for i5/OS

Setup | Manage | Advanced | Related Links

Common Tasks and Wizards

- Create HTTP Server
- Create Application Server
- Migrate Original to Apache
- Create WebSphere Portal
- Create IBM Workplace

Create WebSphere Application Server - Express, V6.1

Summary

When you click finish this WebSphere application server will be created.

Application Server: HTTP Server

WAS version: 6.1.0.3 Express

Application server name: iwab61express

Server description: System i Access for Web

Internal port range: 10101 - 10115

Virtual host: default_host

Profile root: /QIBM/UserData/WebSphere/AppServer/V61/Express/profiles

External HTTP server association: WAS6 EXPRESS

Server URL: http://LP016AB:10100

Business applications: None

Sample applications:

Application name	URL to access application
query	Used by EJB client applications
Default Applications	http://LP016AB:10100/loop
	http://LP016AB:10100/hlcount
	http://LP016AB:10100/hello

Note: To access the application(s) you have chosen, start both the application server and HTTP server, then enter a URL from the table above.

Finish Cancel Printable Summary

Done

i want an i.

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IBM System i

Setup web-serving environment (continued)

- Page refreshes to Application Servers tab, status of Creating...

Done

i want an i.

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IBM System i

Setup web-serving environment (continued)

- Environment is created when status reaches Stopped, Click start icon to start

Done

i want an i.

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IBM System i

Setup web-serving environment (continued)

- Page is refreshed listing the application servers and HTTP web server that will be started

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IBM System i

Setup web-serving environment (continued)

- Environment is ready for use when status reaches Running

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Setup web-serving environment (continued)

- Tips for managing the Web Administration for i5/OS and HTTP web servers
 - To start/stop the IBM Web Administration for i5/OS interface
 - STRTCPSVR *HTTP HTTPSVR(*ADMIN)
 - ENDTCPSSVR *HTTP HTTPSVR(ADMIN)
 - To access the IBM Web Administration for i5/OS interface
 - http://<system_name>:2001/HTTPAdmin
 - CL commands to start/stop the HTTP web servers
 - STRTCPSVR *HTTP HTTPSVR(<my_http_server_name>)
 - ENDTCPSSVR *HTTP HTTPSVR(<my_http_server_name>)
 - HTTP servers run within the QHTTPSVR subsystem

Setup web-serving environment (continued)

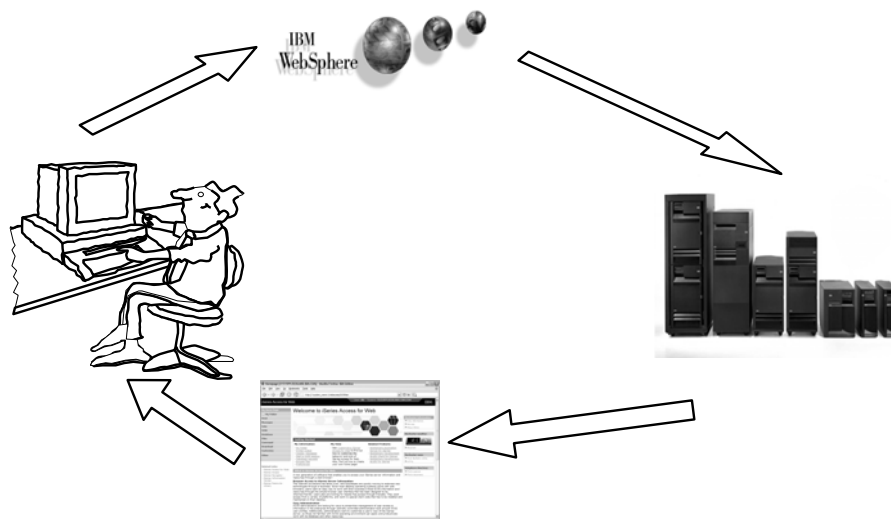
- WebSphere Application Server V6.1 information
 - Subsystem
 - Runs in QWAS61 subsystem
 - WRKACTJOB SBS(QWAS61)
 - Jobs (web application server) are named with the name of the web application server
 - Instances vs. profiles
 - Previous WAS versions had “instances”. V6.1 has “profiles”.
 - A default profile is created named “default”. The web application server it contains is named “server1”.
 - IFS
 - /QIBM/ProdData/WebSphere/AppServer/V61/Base/...
 - /QIBM/UserData/WebSphere/AppServer/V61/Base/...
 - /QIBM/ProdData/WebSphere/AppServer/V61/Express/...
 - /QIBM/UserData/WebSphere/AppServer/V61/Express/...
 - /QIBM/ProdData/WebSphere/AppServer/V61/ND/...
 - /QIBM/UserData/WebSphere/AppServer/V61/ND/...
 - These paths are defaults.
 - WAS 6.1 can be installed anywhere in the IFS
 - WAS 6.1 profiles can be created anywhere in the IFS.
 - If using WAS Network Deployment product, the profile cannot be federated/managed in the Network Deployment environment

Step by Step

Setup web-serving environment (continued)

- **WebSphere Application Server V6.0 information**
 - **Subsystem**
 - Runs in QWAS6 subsystem
 - WRKACTJOB SBS(QWAS6)
 - Jobs (web application server) are named with the name of the web application server
 - **Instances vs. profiles**
 - Previous WAS versions had “instances”. V6.0 has “profiles”.
 - A default profile is created named “default”. The web application server it contains is named “server1”.
 - **IFS**
 - /QIBM/ProdData/WebSphere/AppServer/V6/Base/...
 - /QIBM/UserData/WebSphere/AppServer/V6/Base/...
 - Note: Profiles can be created to user specified paths, above is the default path.
 - If using WAS Network Deployment product, the profile cannot be federated/managed in the Network Deployment environment

Configure System i Access for Web



Configure System i Access for Web

- System i Access for Web must be deployed (configured) to a running web application server
- System i Access for Web provides CL/QShell commands
 - CL commands – QIWA2 library
 - CFGACCWEB2 Configure System i Access for Web
 - STRACCWEB2 Start System i Access for Web
 - ENDACCWEB2 End System i Access for Web
 - RMVACCWEB2 Remove System i Access for Web
 - QShell - /QIBM/ProdData/Access/Web2/install
 - cfgaccweb2 Configure System i Access for Web
 - straccweb2 Start System i Access for Web
 - endaccweb2 End System i Access for Web
 - rmvaccweb2 Remove System i Access for Web
- Commands are provided to...
 - Ease the complexity of deploying a web application
 - Check dependencies
 - Invoke appropriate WebSphere tool to deploy a web application
 - Perform additional required setup
 - Setup /QIBM/UserData/Access/Web2/... structure
 - Allows for PTFs that make use of the normal i5/OS PTF tools

Configure System i Access for Web (continued)

- Use available documentation
 - System i Access for Web – V5R4 Information Center
 - Place to start to get V5R4 System i Access for Web installed and running
 - Examples included for each web application server environment
 - <http://www.ibm.com/eserver/series/access/web/doc.html>
- When the commands are run
 - The WebSphere web application server must be running before running CFGACCWEB2/RMVACCWEB2
 - The WebSphere web application server will need to be restarted after CFGACCWEB2/RMVACCWEB2
 - No updates are made to the HTTP web server configuration.
- Notes
 - Do not use the web administration interface or WebSphere Admin. console to configure (deploy) or remove System i Access for Web
 - Do not attempt to migrate a WebSphere environment to another WebSphere environment when System i Access for Web is configured

Configure System i Access for Web (continued)

- To configure the web-serving environment created above using the CL command
 - `QIWA2/CFGACCWEB2 APPSVRTYPE(*WAS61EXP) WASPRF(iwa61express) APPSVR(iwa61express)`
- To configure the web-serving environment created above using the QSH command
 - `QSH`
 - `cd /QIBM/ProdData/Access/Web2/install`
 - `cfgaccweb2 -appsvrtype *WAS61EXP -wasprf iwa61express -appsvr iwa61express`
- Now the web-serving environment must be stop/restarted to load the configuration changes that were made for System i Access for Web
- Note
 - Use the help text for the commands to learn more about the command and individual parameters
 - Some help is available for the for the QSH commands
 - `cfgaccweb2 -? -help`

Configure System i Access for Web (continued)

- The CFGACCWEB2/cfgaccweb2 commands accept other parameters...
 - The following parameter tells Access for Web to connect and serve data from a backend i5/OS system. If not specified, the local i5/OS running the web system will be used.
 - `TGTSVR - *DEFAULT`, fully qualified system name
 - Specifies whether the web application (System i Access for Web) or the web application server (WebSphere) will authenticate the user.
 - `AUHTTYPE - *APP, *APPSVR`
 - `AUTHMETHOD - *FORM, *BASIC`
 - Input a WAS user ID/password for WAS profiles where WAS security has been enabled
 - `WASUSRID`
 - `WASPWD`
 - To configure new web application servers based on existing web application where Access for Web is configured
 - `SRCVSVRTYPE - *ASFTOMCAT, *WAS50, *WAS50EXP, *WAS51, *WAS51EXP, *WAS60`, etc.
 - `SRCVSRINST` – Name of the WAS instance/profile, or Tomcat server
 - `SRCAPPSVR` – Name of WAS application server within the instance/profile
 - `SRCINSDIR` – Install path of WAS V6.1 profile
 - `SHRUSRDATA` – Copy the user data to the new configuration or share the user data between the old and new configurations.

Configure System i Access for Web (continued)

- **Note**

- When upgrading from one WAS version to another where Access for Web is configured, do not migrate the WAS instance/profile where Access for Web is configured.
- To migrate System i Access for Web from WAS 5.1 Express to WAS 6.1 Express
 - Install WAS 6.1 Express
 - Create a WAS 6.1 Express profile
 - Configure Access for Web to WAS 6.1 Express based on the WAS 5.1 Express configuration.

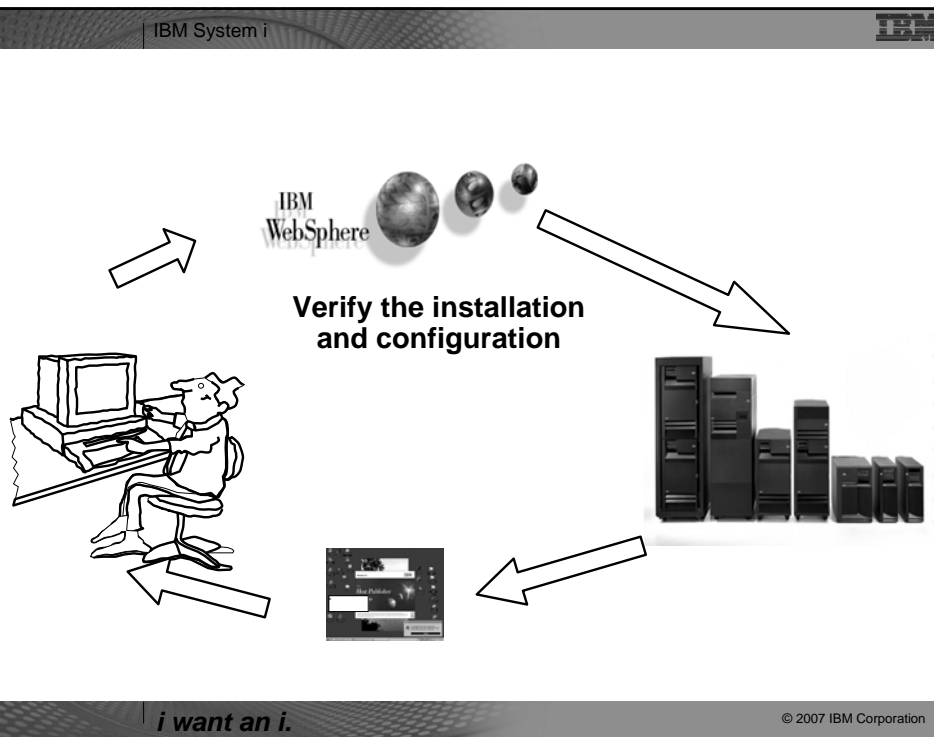
```

cfgaccweb2      -appsvrtype *WAS61EXP
                -wasprf iwa61express
                -appsvr iwa61express
                -wasinsdir /QIBM/ProdData/WebSphere/AppServer/V61/Express
                -srcsvrtype *WAS51EXP
                -srcsvrinst iwa51exp
                -srcappsvr iwa51exp
                -shrusrda *NO
  
```

- Remove the WAS 5.1 Express configuration if it's no longer needed.

```

rmvaccweb2      -appsvrtype *WAS51EXP
                -wasprf iwa51exp
                -appsvr iwa51exp
  
```



IBM System i

Verify the installation and configuration

- IBM Web Administration for i5/OS → Applications → Manage Installed Applications

The screenshot shows the 'Manage Installed Applications' interface. The table below represents the data shown in the application list:

Application name	Status	Enablement
DefaultApplication	Running	Enabled
iSeriesAccessorWeb	Running	Enabled
query	Running	Enabled
iMApp	Running	Enabled
isclite	Running	Enabled

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IBM System i

Verify the installation and configuration (continued)

- WebSphere Portal → My iSeries page + subpages with portlets

The screenshot shows the 'My iSeries' page with the following sections:

- Start Session:** A form with fields for Server (myiSeries.mydomain.com), Port (23), and Code page (37). There are checkboxes for 'Avoid duplicates for this user' and 'Avoid duplicates with other users'.
- iSeries Access portlets include the following:**
 - 5250 portlet: Run commands and access full-screen 5250 character-based applications.
 - iFrame portlet: Access any of the iSeries Access for Web servlets using the iFrame portlet.
 - Integrated file system (IFS) browsing portlets: Browse the iSeries integrated file system. View, edit, upload and download files.
 - Printers, printer output, and output queues portlets: View printer status, start and stop the writer job associated with a printer. Hold, release, print, delete and view printer output files. Move printer output files to another output queue or printer. Hold and release output queues.
 - Database tables and SQL portlets: View database tables, add and update records. View query results, customize format of results. Run SQL statements dynamically.
 - Commands portlets: Run CL commands.

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Verify the installation and configuration (continued)

- HTTP Server
 - Verify several jobs are running with the name of your HTTP server
 - WRKACTJOB SBS(QHTTPSVR)
- WebSphere Application Server
 - Verify the application server is running
 - WRKACTJOB SBS(QWAS61) V6.1 - WAS for i5/OS
 - WRKACTJOB SBS(QWAS6) V6.0 - WAS for OS/400
- System i Access for Web
 - Open browser to `http://<system_name>:<port>/webaccess/iWAHome`
 - Open browser to `http://<system_name>:<port>/webaccess/iWAMain`

Verify the installation and configuration (continued)

- When things do not work
 - Verify the HTTP server is running
 - Verify the WebSphere application server was restarted after running CFGACCWEB2
 - Verify the WebSphere application server running
 - That you have the latest group PTFs for the HTTP server and WebSphere Application Server.
 - That System i Access for Web is listed as an installed application in the WebSphere application server (via the IBM Web Administration for i5/OS interface)
 - System i Access for Web logs
 - /QIBM/UserData/Access/Web2/logs/cmds.log High level translated log
 - /QIBM/UserData/Access/Web2/logs/cmdstrace.log Low level untranslated log
 - /QIBM/UserData/Access/Web2/logs/<appsvrtype>/<wasprf>/<appsvr>/logs/*
 - Logs for specific WAS servers. Note: some logs may be EBCDIC requiring use of WRKLNK i5/OS command to view them

Verify the installation and configuration (continued)

When things do not work

- WAS V6.0
 - /QIBM/UserData/WebSphere/AppServer/V6/Base/profiles/<profile_name>/logs/wsadmin.traceout
 - /QIBM/UserData/WebSphere/AppServer/V6/Base/profiles/<profile_name>/logs/activity.log
 - /QIBM/UserData/WebSphere/AppServer/V6/Base/profiles/<profile_name>/logs/<app_server_name>/SystemOut.log
 - /QIBM/UserData/WebSphere/AppServer/V6/Base/profiles/<profile_name>/logs/<app_server_name>/SystemErr.log
- WAS Network Deployment V6.0
 - /QIBM/UserData/WebSphere/AppServer/V6/ND/profiles/<profile_name>/logs/wsadmin.traceout
 - /QIBM/UserData/WebSphere/AppServer/V6/ND/profiles/<profile_name>/logs/activity.log
 - /QIBM/UserData/WebSphere/AppServer/V6/ND/profiles/<profile_name>/logs/<app_server_name>/SystemOut.log
 - /QIBM/UserData/WebSphere/AppServer/V6/ND/profiles/<profile_name>/logs/<app_server_name>/SystemErr.log

Verify the installation and configuration (continued)

When things do not work

- WAS V6.1 (base edition)
 - /QIBM/UserData/WebSphere/AppServer/V61/Base/profiles/<profile_name>/logs/wsadmin.traceout
 - /QIBM/UserData/WebSphere/AppServer/V61/Base/profiles/<profile_name>/logs/activity.log
 - /QIBM/UserData/WebSphere/AppServer/V61/Base/profiles/<profile_name>/logs/<app_server_name>/SystemOut.log
 - /QIBM/UserData/WebSphere/AppServer/V61/Base/profiles/<profile_name>/logs/<app_server_name>/SystemErr.log

Verify the installation and configuration (continued)

When things do not work

- WAS V6.1 - Express
 - /QIBM/UserData/WebSphere/AppServer/V61/Express/profiles/<profile_name>/logs/wsadmin.traceout
 - /QIBM/UserData/WebSphere/AppServer/V61/Express/profiles/<profile_name>/logs/activity.log
 - /QIBM/UserData/WebSphere/AppServer/V61/Express/profiles/<profile_name>/logs/<app_server_name>/SystemOut.log
 - /QIBM/UserData/WebSphere/AppServer/V61/Express/profiles/<profile_name>/logs/<app_server_name>/SystemErr.log
- WAS V6.1 Network Deployment
 - /QIBM/UserData/WebSphere/AppServer/V61/ND/profiles/<profile_name>/logs/wsadmin.traceout
 - /QIBM/UserData/WebSphere/AppServer/V61/ND/profiles/<profile_name>/logs/activity.log
 - /QIBM/UserData/WebSphere/AppServer/V61/ND/profiles/<profile_name>/logs/<app_server_name>/SystemOut.log
 - /QIBM/UserData/WebSphere/AppServer/V61/ND/profiles/<profile_name>/logs/<app_server_name>/SystemErr.log

Questions regarding
the Step by Step
option?

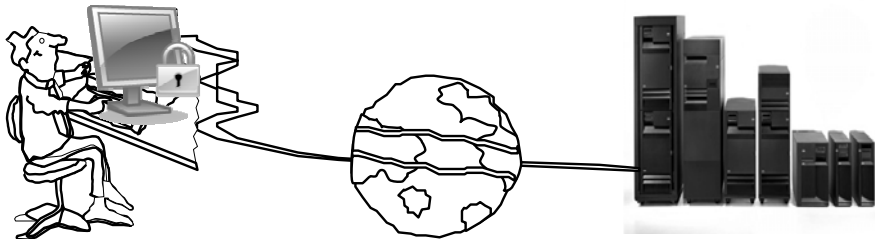


Additional Information

The following charts discuss...

- Using System i Access for Web to backend to other i5/OS systems
- Using the 5250 session function to connect to i5/OS systems in the network
- How to automate the startup of the web environment following a system IPL
- How to see what users are connected through System i Access for Web
- Setting limits

System i Access for Web from the Internet and Security



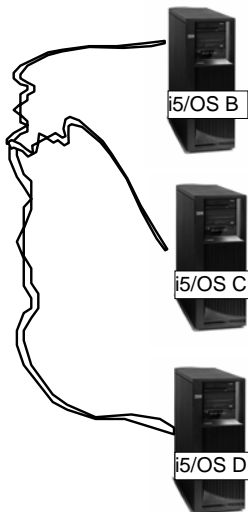
- **Would it be possible for my users to access their data from home over the internet?**
- **What would the setup/environment look like?**
- **How would security be enabled to protect the network?**
- **Could the web environment be isolated from the servers containing data?**

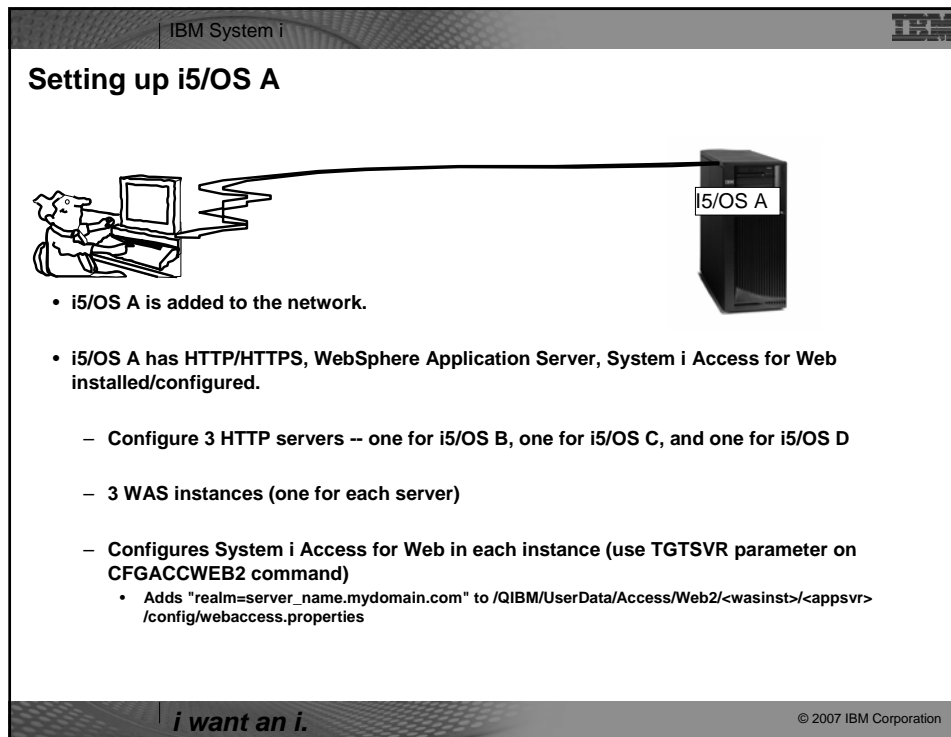
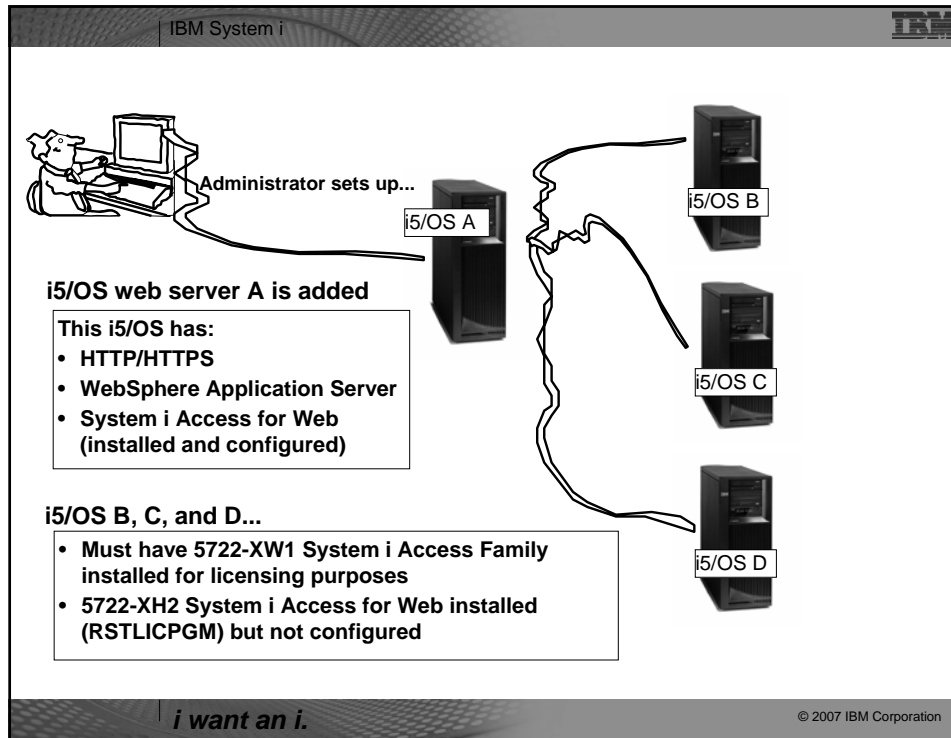


Let's look at an example...

Backend i5/OS

- **The backend i5/OS B, C, D contain data.**
- **They are inside the company network.**
- **i5/OS B, C, D do not have web serving software installed, let's assume they don't.**
- **I want some users to be able to always connect to i5/OS B, some others to i5/OS C, and some others to i5/OS D**





IBM System i

• Administrator sets up...
– Firewall between web server and data servers.

Firewall

- A firewall is put in place between the web server (A) and the data servers (B, C, D).
- System i Access for Web will require you to open the Host Server ports because it is running on A and only connecting to B, C, D.

Host Server ports

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IBM System i

Access from Internet

Ports 5001, 5002, 5003

- Web environment on i5/OS A is started
– 3 HTTP servers listening on ports 5001, 5002, 5003
- System i Access for Web is accessed using...
– `http://A:5001/webaccess/iWAMain` to get to ServerB
– `http://A:5002/webaccess/iWAMain` to get to ServerC
– `http://A:5003/webaccess/iWAMain` to get to ServerD

Host Server ports

Please note:
This is only one example of how to configure this environment.

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IBM System i

User starts browser and keys in url address...

- System i Access for Web user is providing a different address to get to each i5/OS server...
 - http://A:5001/webaccess/iWAMain to get to ServerB
 - http://A:5002/webaccess/iWAMain to get to ServerC
 - http://A:5003/webaccess/iWAMain to get to ServerD

The user must provide the correct i5/OS user ID and password for the backend data server to gain access.

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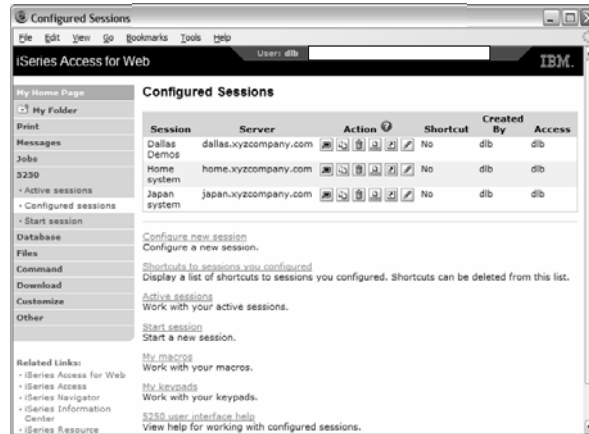
IBM System i

System i Access for Web - 5250 session

- Could be connected to i5/OS B and start a new session from there to i5/OS C or i5/OS D
- Identify i5/OS server
- Determine what workstation (device) ID to use
- Connect to another i5/OS

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Or could connect to another i5/OS server through a preconfigured shortcut



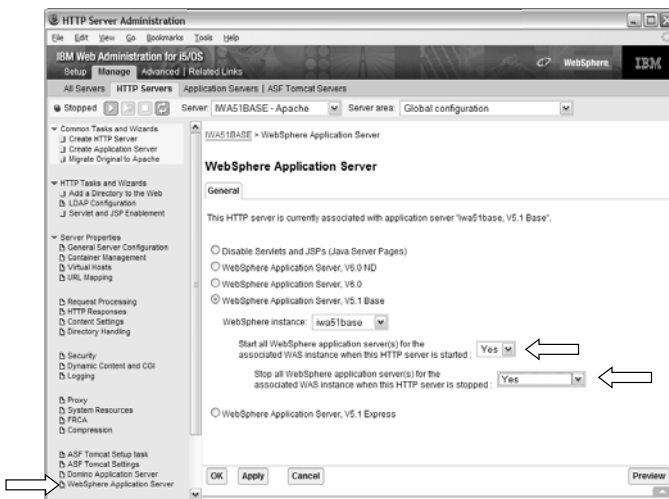
Auto start web environment after an IPL



- You can configure the HTTP server for your WebSphere application server to automatically start the WebSphere application server when it starts
- Use the following command to start the HTTP server as part of your IPL procedures and it will start your WebSphere application server.
 - STRTCPSVR SERVER(*HTTP)
 - HTTSPVR(<http_server_name>)

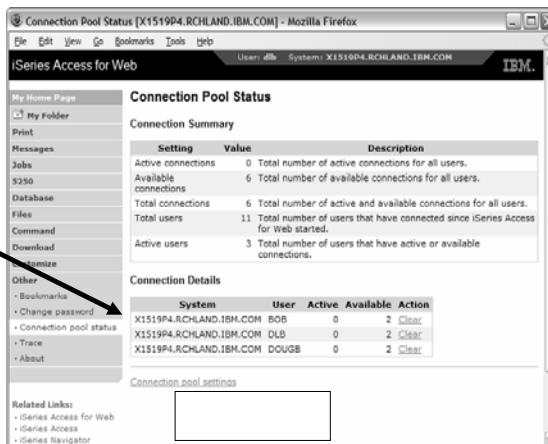
Auto start web environment after an IPL (continued)

STRTCPVSR SERVER(*HTTP) HTTPSVR(IWA51BASE)



Who is connected using System i Access for Web?


Look in Connection Pool Status



IBM System i

Setting limits for System i Access for Web use...

- **Connection Pool Settings**
- **Can get to this via:**
 - **Link on Connection Pool Status screen**
 - **Customize -> Settings**



Setting	Value	Description
Cleanup interval	5 minutes	Specify how often to clean up connections.
Connections per user	No maximum	Specify the maximum number of concurrent connections allowed per user.
Maximum inactivity	1 hour	Specify the maximum time a connection can be inactive before it is cleaned up.
Maximum lifetime	12 hours	Specify the maximum time a connection can exist before it is cleaned up.
Maximum use count	No maximum	Specify the maximum number of times a connection can be used before it is cleaned up.
Maximum use time	10 hours	Specify the maximum time a connection can be active before it is cleaned up.

Save Cancel Apply Shipped Defaults


Related Links:
 • iSeries Access for Web
 • iSeries Access
 • iSeries Navigator
 • iSeries Information Center

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IBM System i

If using WAS Network Deployment for iSeries/i5/OS

- **For the WebSphere Application Server Network Deployment for iSeries environment**
 - **WebSphere v5.0/5.1 Base Edition must be installed**
 - **WebSphere v6.0 Base/Express Edition must be installed**
 - **iSeries Access for Web does not support WebSphere instances/profiles that are federated to the WebSphere Network Deployment environment**



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Additional information

- The following resources are available
 - HTTP Server redbook
 - <http://www.redbooks.ibm.com/redpieces/pdfs/sg246716.pdf>
 - Section 6.3 Encrypting your data with SSL and TLS
 - Section 6.4 Proxy server: Protecting direct access
 - Information Center - Setting up a reverse proxy for HTTP server
 - <http://publib.boulder.ibm.com/series/v5r2/ic2924/index.htm?info/rzaie/rzaiereverseproxy.htm>
- See Appendix A for additional information

Appendix A. Additional Documentation



Enjoy the rest of
your conference!

Notes: HTTP/HTTPS - SSL

The Internet was designed to be an open system and it allows any computer on the network to see the messages passing through. To consider an information transaction secure, it has to have the following characteristics:

Confidentiality

Use encryption if you want to ensure that the contents of the message remain private as they pass through the network.

Integrity

Use encryption and digital signatures if you want to ensure integrity. Messages are not altered while being transmitted.

Accountability

Use digital signatures when both the sender and the receiver agree that the exchange took place to ensure accountability.

Authenticity

OS/400 SSL provides server authentication so you can authenticate with whom you are talking.

You can configure the iSeries server to use a security protocol, called Secure Sockets Layer (SSL), for data encryption and client/server authentication. A client establishes an SSL session by sending an HTTPS request to the server on the SSL port. If SSL client authentication is enabled on the server, a client certificate is requested for any HTTPS request. SSL uses a handshake protocol where the server authenticates and the client authenticates if enabled. When authenticated, they agree on the security keys to use for the session, and the algorithms to be used for encryption and message digests or hashes. When a session has been established, all data exchanged on that session is encrypted.

Below is a highlevel list of steps involved with enabling HTTPS. The steps may not address all issues relative to your environment. It is recommended that the iSeries information center and HTTP server documentation be referenced to enable HTTPS.

1. If you are new to SSL, HTTPS, or digital certificates, review the following information before configuring SSL.
 - Security concepts information in the iSeries Information Center (<http://www.ibm.com/eserver/iseries/infocenter>). Look for information under the topics Networking-->Networking Security.
 - Security and SSL information in the HTTP server documentation at <http://www.ibm.com/servers/eserver/iseries/software/http>
2. Configure your HTTP server instance to allow SSL connections. You must already have created an HTTP server that you want to enable to run SSL.
3. Configure digital certificates through the Digital Certificate Manager on the iSeries server.
4. Configure the web application server to use the SSL port. The SSL port must be listed within the WebSphere virtual host alias table.
5. Open a browser to one of the following URLs:
 - If using the default SSL port of 443
`https://<server_name>/webaccess/!WAHome`
 - If using any other port number, replace the <port> with the port number configured with the HTTP server.
`https://<server_name><port>/webaccess/!WAHome`

Notes: Firewalls

A firewall is a blockade between a secure internal network and an untrusted network such as the Internet. Most companies use a firewall to connect an internal network safely to the Internet, although you can use a firewall to secure one internal network from another also.

A firewall provides a controlled single point of contact (called a chokepoint) between your secure internal network and the untrusted network. The firewall:

- Lets users in your internal network use authorized resources that are located on the outside network.
- Prevents unauthorized users on the outside network from using resources on your internal network.

When you use a firewall as your gateway to the Internet (or other network), you reduce the risk to your internal network considerably. Using a firewall also makes administering network security easier because firewall functions carry out many of your security policy directives.

How a firewall works

To understand how a firewall works, imagine that your network is a building to which you want to control access. Your building has a lobby as the only entry point. In this lobby, you have receptionists to welcome visitors, security guards to watch visitors, video cameras to record visitor actions, and badge readers to authenticate visitors who enter the building.

These measures may work well to control access to your building. But, if an unauthorized person succeeds in entering your building, you have no way to protect the building against this intruder's actions. If you monitor the intruder's movements, however, you have a chance to detect any suspicious activity from the intruder.

Firewall components

A firewall is a collection of hardware and software that, when used together, prevent unauthorized access to a portion of a network. A firewall consists of the following components:

- Hardware. Firewall hardware usually consists of a separate computer or device dedicated to running the firewall software functions.
- Software. Firewall software provides a variety of applications. In terms of network security, a firewall provides these security controls through a variety of technologies:
 - Internet Protocol (IP) packet filtering
 - Network address translation (NAT) services
 - SOCKS server
 - Proxy servers for a variety of services such as HTTP, Telnet, FTP, and so forth
 - Mail relay services
 - Split Domain name services (DNS)

Notes: Firewalls (continued)

- Logging
- Real-time monitoring

Note: Some firewalls provide virtual private networking (VPN) services so that you can set up encrypted sessions between your firewall and other compatible firewalls.

Using firewall technologies

You can use the firewall proxy servers, SOCKS server, or NAT rules to provide internal users with safe access to services on the Internet. The proxy and SOCKS servers break TCP/IP connections at the firewall to hide internal network information from the untrusted network. The servers also provide additional logging capabilities.

You can use NAT to provide Internet users with easy access to a public server behind the firewall. The firewall still protects your network because NAT hides your internal IP addresses.

A firewall also can protect internal information by providing a DNS server for use by the firewall. In effect, you have two DNS servers: one that you use for data about the internal network, and one on the firewall for data about external networks and the firewall itself. This allows you to control outside access to information about your internal systems.

When you define your firewall strategy, you may think it is sufficient to prohibit everything that presents a risk for the organization and allow everything else. However, because computer criminals constantly create new attack methods, you must anticipate ways to prevent these attacks. As in the example of the building, you also need to monitor for signs that, somehow, someone has breached your defenses. Generally, it is much more damaging and costly to recover from a break-in than to prevent one.

In the case of a firewall, your best strategy is to permit only those applications that you have tested and have confidence in. If you follow this strategy, you must exhaustively define the list of services you must run on your firewall. You can characterize each service by the direction of the connection (from inside to outside, or outside to inside). You should also list users who you will authorize to use each service and the machines that can issue a connection for it.

What a firewall can do to protect your network

You install a firewall between your network and your connection point to the Internet (or other untrusted network). The firewall then allows you to limit the points of entry into your network. A firewall provides a single point of contact (called a chokepoint) between your network and the Internet. Because you have a single point of contact, you have more control over which traffic to allow into and out of your network.

Notes: Firewalls (continued)

A firewall appears as a single address to the public. The firewall provides access to the untrusted network through proxy or SOCKS servers or network address translation (NAT) while hiding your internal network addresses. Consequently, the firewall maintains the privacy of your internal network. Keeping information about your network private is one way in which the firewall makes an impersonation attack (spoofing) less likely.

A firewall allows you to control traffic into and out of your network to minimize the risk of attack to your network. A firewall securely filters all traffic that enters your network so that only specific types of traffic for specific destinations can enter. This minimizes the risk that someone could use TELNET or file transfer protocol (FTP) to gain access to your internal systems.

What a firewall cannot do to protect your network

While a firewall provides a tremendous amount of protection from certain kinds of attack, a firewall is only part of your total security solution. For instance, a firewall cannot necessarily protect data that you send over the Internet through applications such as SMTP mail, FTP, and TELNET. Unless you choose to encrypt this data, anyone on the Internet can access it as it travels to its destination.

IBM System i

iSeries & WebSphere Resources & Deliverables

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