IBM eServer J iSeries J

Session: 420017

iSeries Access for Windows: What's New?

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Agenda

Topics to be covered

- NetServer
- Install
- PC5250
- Data Transfer
- Middleware
- What's coming in the next release

Abstract

If you are a veteran Express for Windows user and want to find out what new functions have been added, then come to this session. Now shipping is the V5R2 version, renamed to iSeries Access for Windows. Come hear the enhancements that have been added in the areas of security, 5250 emulation, data transfer, install, application development, and much more.

iSeries Access for Windows - Product Information

- First Release
  - May 1999, VRM = V4R4M0
  - Product Number 5769-XE1
  - Support ended 5/31/2001
- Second Release
  - August 2000, VRM = V4R5M0
  - Product Number 5769-XE1
  - Supported until 12/31/2002
- Third Release
  - May 2001, VRM = V5R1M0
  - Product Number 5722-XE1
  - Supported until 5/31/2003
- Fourth Release
  - August 30, 2002, VRM = V5R2M0
  - Product Number 5722-XE1
  - Supported until 9/30/2004

V5R2 Enhancements

- New Names
  - iSeries Access Family (5722-XW1, V5R2)
    - V5R1 name is iSeries Client Access Family
  - iSeries Access for Windows (5722-XE1, V5R2)
    - V5R1 name is iSeries Client Access Express for Windows
- New Products
  - iSeries Access for Wireless
    - Includes previous MC-Pervasive function, IBM Toolbox for Java 2 Micro Edition, and Java Data Base Connection (JDBC) driver to access DB2 UDB for iSeries.
  - iSeries ODBC Driver for Linux
  - Enables Linux applications to access DB2 UDB for iSeries data
    - Red Hat, Turbo, and SuSE PowerPC - runs in an iSeries partition, pSeries, or any PowerPC
    - Intel - runs on any Intel PC

iSeries Access Family Packaging

V5R1 5722-XW1 iSeries Client Access Family	V5R2 5722-XW1 iSeries Access Family
• 5722-XE1, V5R1 AS/400 Client Access Express for Windows ‣ Includes Operations Navigator, Management Central, Operations Console, EZ Setup	• 5722-XE1, V5R2 iSeries Access for Windows ‣ Includes Operations Navigator, Management Central, Operations Console, EZ Setup
• 5722-XH1, V5R1 iSeries Access for Web	• 5722-XH2, V5R2 iSeries Access for Web
• 5648-E25, V3.5 WebSphere Host Publisher	• 5724-B81, V4.0 WebSphere Host Publisher
5722-CE2, 3, iSeries Client Encryption, 56, 128-bit	• 5722-CE3, iSeries Client Encryption, 128-bit
Customers with Software Subscription can get V5R2 clients by ordering no-charge Feature No. 2645 of Product No. 5722-XW1	

Set up the License Key Information

- iSeries Client Access Family (5722-XW1) is included on the Keyed Stamped media.
  - Can use all functions of iSeries Access Family for 70 days without purchasing 5722-XW1.
- To set up License key information for 5722-XW1
  - Run WRKLICINF command.
    - Type '1' in the entry field next to the product 5722XW1 Option 1, Feature 5101.
    - This is where you enter your software license key.
  - On the Add License Key Information (ADDLICKEY) display
    - Type the required information and add the license key information
    - Always enter the value *NOMAX regardless of what was entered for usage limit.

Notes: Software License Keys for V5R1

With V5R1, iSeries Client Access Family (Licensed Program number 5722-XW1) is added to the Keyed Stamped Media to enable you to evaluate the function. This feature is for evaluation use only and keys are not supplied. The Client Access functions that require the Client Access Family license can be evaluated for 70 days. After 70 days, you need to order (or have upgraded to) the V5R1 5722-XW1 product to receive the software license key. As in prior releases, all components of Client Access Express can be installed on the PC, whether the components require a license or not. Also as in prior releases, the 5722-XW1 license will be checked at the point when a user tries to use a licensed function. The difference for V5R1 is that now users will be allowed 70 days to evaluate the licensed functions without having the license key.

The 5722-XW1 licensed program now has both a base and option 1.
Both need to be installed when XW1 is installed on the iSeries or AS/400e server.
5722-XW1 feature 5050, which is the base. This is where you need to enter your usage limit.

If you ordered a user-based option you would need to enter a use quantity equal to the number of users you are entitled to use.
If you ordered the PBOTC option, you would enter a use quantity of *NOMAX."

5722-XW1 feature 5101, which is option 1. This is where you enter your software license key.

The screens for ADDLICKEY have a 'usage limit' value (for release-to-release compatibility) and they cannot be left with the default of '0'. Thus our instructions recommend that you enter a value of *NOMAX. This field is ignored by Client Access license management as it checks the usage limit value entered on the base.

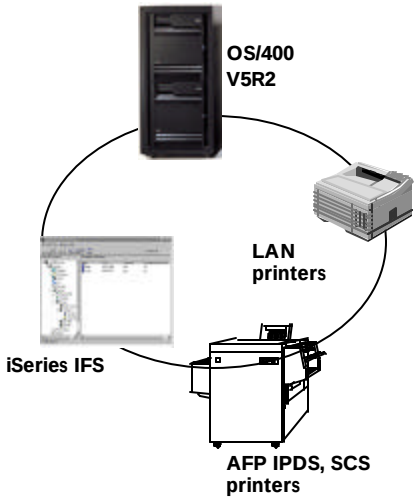
PC Hardware Requirements

- For End Users not using iSeries Navigator
- Windows 98, Me
  - Pentium 100 MHz
  - At least 32MB RAM
  - For NT 4.0 need SP5 or later
- Windows 2000
  - Pentium 133 MHz
  - At least 64MB RAM
- Windows XP
  - Pentium 233 MHz
  - At least 128MB RAM
- If additionally installing iSeries Navigator functions
- Windows 98, Me, NT 4.0, 2000
  - Pentium 400 MHz
  - At least 128MB RAM (256MB recommended)
  - For NT 4.0 need SP5 or later
- Windows XP
  - Pentium 400 MHz
  - At least 256MB RAM

Notes: HW/SW Requirements

If you do not plan to use iSeries Navigator for anything other than managing your iSeries connections (adding, removing, and changing connection properties), it is recommended that you do not install the iSeries Navigator base component. Installing that component will result in higher memory usage when managing your iSeries connections.

Disk Space - Install
Typical - 124MB (approximately)
PC5250 User - 44.5MB (approximately)
Full - 185MB (approximately)
Custom - variable depending upon components installed



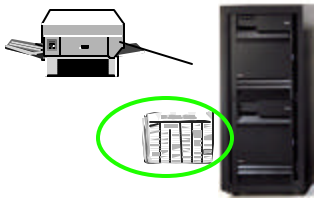
iSeries NetServer

for File and Print Serving

www.ibm.com/eserver/iseries/netserver

iSeries NetServer Domain Logon Support

- iSeries can operate as the 'Logon Server' for Windows clients
  - Authenticates logging onto Windows
  - Provides the home directory
  - Windows user profiles (including Desktop, Start Menu, Favorites, and policies) can be stored and retrieved from an iSeries server
- A Windows NT/2000 no longer needed in network for these functions
- Other V5R1 Enhancements
  - Reduces the number of times that OS/400 user profiles become disabled
  - New Operations Navigator GUI (and API) to reenable user profiles if they do become disabled



iSeries NetServer

- **file serving**
  - supports >2GB files
- **print serving**

New in OS/400 V5R1

Notes: iSeries NetServer Domain Logon

The iSeries NetServer is enhanced so that the iSeries can operate as the Logon Server for Windows clients. The iSeries can be used to authenticate logging onto Windows, provide the home directory, and logon scripts to the Windows user. Additionally Windows uer profiles, including Desktop, Start Menu, Favorites, and policies, can be stored and retrieved from an iSeries server. A Windows NOT or Windows 2000 server is no longer needed in the network to provide these functions.

iSeries NetServer has dramatically reduced the number of times that OS/400 user profiles become disabled due to Windows programmatically attempting invalid signons to access the OS/400 without compromixing security. Additionally, when users do cause their user profiles to become disabled (due to several attempts with different invalid passwords) AS/400 NetServer provides new GUI support through a Disabled User IDs menu item off the iSeries NetServer menu of iSeries Navigator to reenable these user profiles. This support has also been made available through an API on OS/400. These changes can reduce the number of times that user profiles become disabled and improve the ease with which disabled users can be managed.

iSeries has enhanced the allowable characters in a password and the length of a password to be more compatible with Windows. This helps customers who like to have their Windows and iSeries passwords match. iSeries NetServer also provides support for the NTLMV2 password hash that the Windows PCs can be configured to use to provide better password protection on the network.

User IDs longer than 10 charters are now truncated to 10 characters when checking for an iSeries user ID instead of being rejected. Now a user ID such as Administrator on Windows would be the same as ADMINISTRA on the iSeries. This will help compatibility between Windows and iSeries user IDs.

iSeries NetServer now supports access of files larger than 2 GB in the Integrated File System.

Installing

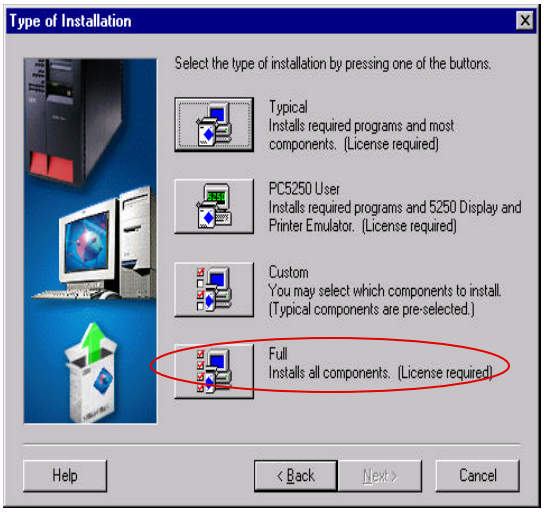
iSeries Access for Windows installs code in iSeries IFS (NetServer)

- iSeries Access client Install Image placed in IFS in:
  - \QIBM\ProdData\CA400\Express\Install\Image
  - Already set up as 'shared'
- Service Pack placed in IFS in:
  - V5R1 - Service Pack PTFs saved in the main install image--no extra reboot!
  - For V4R5 or earlier, \QIBM\ProdData\CA400\Express\Service\Image
- Express installs and services other code placed in IFS:
  - iSeries Toolbox for Java, Java Runtime Environment, Secure Sockets Layer (SSL) Encryption programs, iSeries Navigator Plug-ins, Add-ins
  - V5R1 - EZ Setup

Tip: Tailored 'Full' Install

Do you want to control which Client Access Express components your users can install?

- Create a custom installation image by excluding the unwanted components from a master installation image.
- Use this customized installation image for installations across your network.

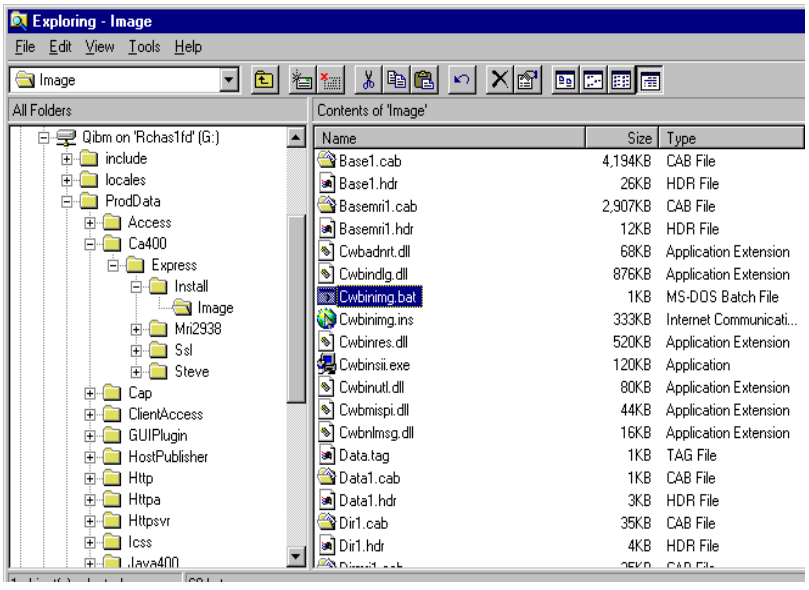


For information on tailored install images look at Express Administrators Guide:
http://www.ibm.com/eservers/iseries/clientaccess/expressinfoctr.htm
Administering -> Installation and Service Administration -> Creating a tailored installation image

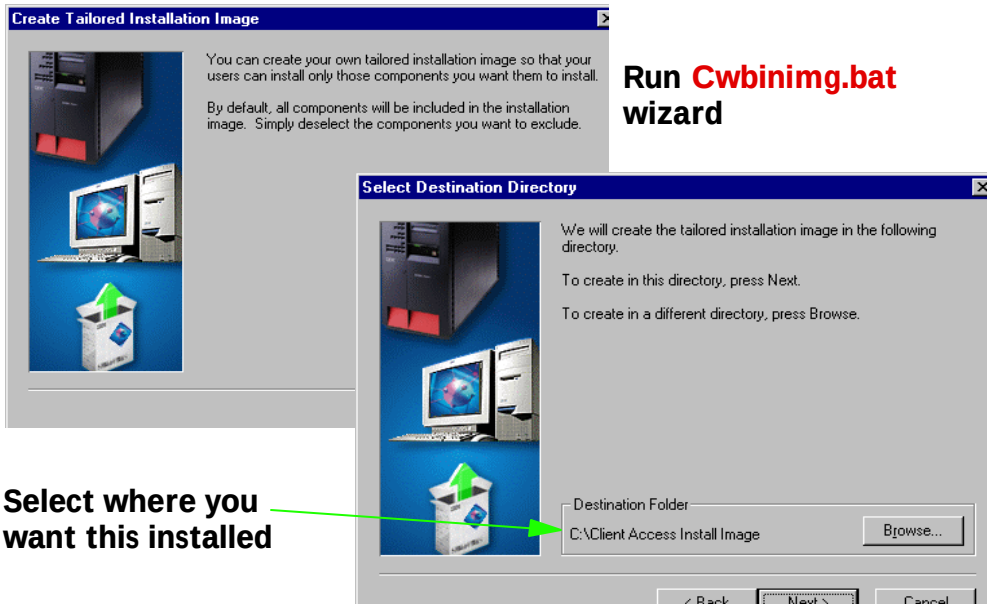
Steps to set up your own 'Tailored' Full Install

Use Tailored Install wizard

- Stored in Client Access folder
  ProdData->
  CA400->
  Express->
  Install->
  Image->
- Run Cwbinimg.bat program



Run Wizard to create a Tailored Install Image



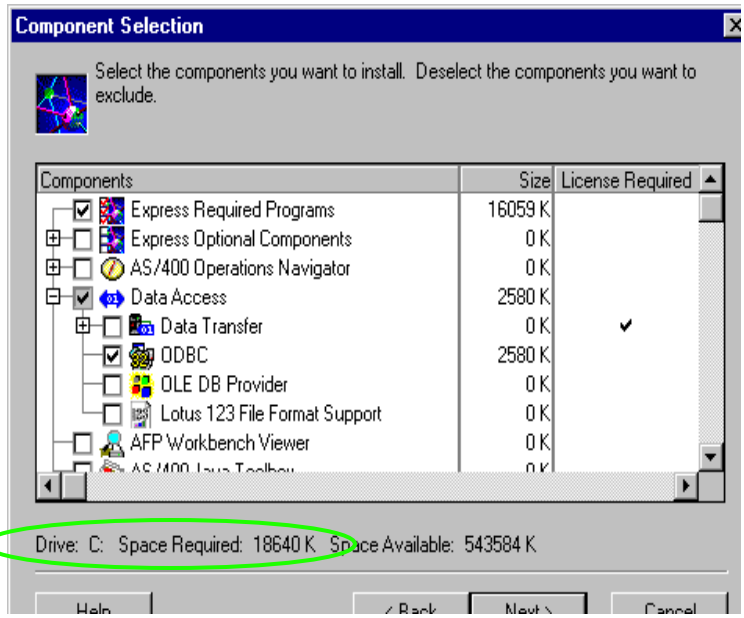
Run Cwbinimg.bat wizard

Select where you want this installed

Example: Only want user to have ODBC driver

Build tailored install that only enables end user to use ODBC driver

- Deselect all items you don't want users to use. Program will tell you if there is a pre-req you must install
- Note: this option requires 18MB of space.



Notes: Tailored Install

After your initial installation and configuration, you can create tailored installation images containing only the components you specify. You can then easily distribute these installation images across your network with little user interaction using the silent installation/migration option. Additionally, you can restrict users' access to functions by selecting which components to include in an installation. Several common methods are:

Creating a tailored installation image - you can create a custom installation image by excluding the unwanted components from a master installation image. You can then use the customized installation image for installations across your network.

Installing or migrating silently - create a response file that contains a record of your responses to prompts during an installation. You can then use this response file to control duplicate installations that do not require any user interaction.

Creating a tailored installation image of iSeries Access for Windows

You may want to control which iSeries Access for Windows components your users can install. One way to do this is by excluding selected components from an installation image, and then distributing this tailored installation image to your users. The Tailored Installation Image wizard provides a simple interface for this function. You can start the tailored installation wizard from the iSeries Setup and Operations CD, or by navigating to the installation image directory, \QIBM\ProdData\CA400\Express\Install\Image, and entering cwbinimg.

Note: If your iSeries server has multiple iSeries Access for Windows secondary languages, you can use any of the installed secondary languages, or the primary language on the iSeries server, as the primary language for the new installation image. This is not available if you are running the wizard from the CD, because the CD will not contain any secondary languages.

Distributing the installation image

The wizard allows you to specify where you want to create the tailored installation image. This location must be an empty directory, (you cannot overwrite a previous installation image) and must not be the root directory. Also, only complete installation images contain the program that creates tailored installation images. The wizard is not copied onto the user's PCs.

Servicing the installation image

Any tailored installation images are not updated when Program Temporary Fixes (PTFs) are applied to or removed from the iSeries server. You must re-create the installation image to get service pack updates. You can re-create your installation image quickly and with little user interaction by creating a response file and using it to silently re-create your tailored installation image with the service pack. See Installing Client Access Express silently for more information.

For information on tailored install images see: http://www.ibm.com/eservers/iseries/clientaccess/expressinfoctr.htm

Administering -> Installation and Service Administration -> Creating a tailored installation image

Silent Install

Use Silent Install to:

- **Eliminate the need for any user interaction during the installation process**
- **Allow you to quickly and easily copy duplicate installations across your network**
- **Restrict the set of initial components that an end user can install**

Can be used for:

Initial Install

Upgrades

Service Packs

Migration from Windows 95/NT client (V3R2M0) to the Express client

Notes: Steps in using 'Silent Install

'Create a response file
A response file records the selections made in response to the prompts in the installation process.
During a silent installation, the setup program will use the response file to get the information necessary to complete the installation

Start the Silent Install
Silent install uses a response file (file.iss) for the responses to prompts during the installation process.
This eliminates the need for any user interaction during the installation process, and allows you to quickly and easily copy duplicate installations across your network.

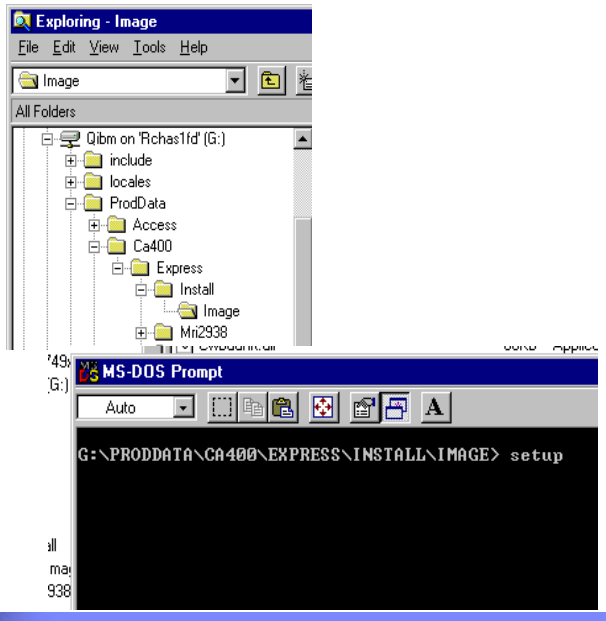
Check the log file return codes to see if your installation was successful
Information about the status of the silent installation can be recorded in a log file (file.log).

For detailed information on Silent Installs see: www.ibm.com/eservers/iseries/clientaccess/expressinfoctr.htm
Administering -> Installation and Service Administration -> Silent installation

Steps to Create a Silent Install

Create a Silent Install

- Point at Client Access Express folder
  - ProdData-> CA400-> Express-> Install-> Image->
  - Right click, select 'Command Prompt Here'
  - This brings up DOS prompt
- Key in Setup
  - 'setup -r -f1d:\dir\file.iss' to identify where responses are to be stored
- This starts the iSeries Access Install program



Notes: Using Silent Install

Silent installation eliminates the need for any user interaction during the iSeries Access for Windows setup process. A response file provides all installation information so that no dialog boxes display while installing iSeries Access for Windows. To perform a silent installation:

1. Create your response file.
2. Start the silent installation.
3. Check the log file return codes to see if your installation was successful.

Note: Silent migrations use a different procedure for creating the response file; otherwise, they may use the previous procedure. The response file contains the installation options that the system would normally prompt you for during the installation process.

To create a silent installation, type the following at a command prompt in the iSeries Access for Windows installation image directory:

'setup -s -f1d:\dir\file.iss -f2d:\dir\file.log' where:

-f1 is an optional parameter where you can specify the response file (file.iss) to use. If you do not use this parameter, then the installation attempts to use a default response file named setup.iss. It looks for this file in the directory containing setup.exe. d:\dir is the drive and directory that contains the response file that you want to use. If you use the -f1 parameter, then you must specify the drive and directory along with the response file name.

-f2 is an optional parameter where you can specify the location and name for the log file that the silent installation creates. If you do not use this parameter, the installation creates a log file named setup.log and places it in the directory containing setup.exe. d:\dir is the drive and directory that contains the log file. If you use the -f2 parameter, then you must specify the drive and directory along with the log file name. file.log is the name of the log file that you want to create.

A table is provided in the Online Administrators Guide that illustrates the differences between a normal and silent installation by comparing how the two types of installations handle various conditions that commonly arise during the installation process.

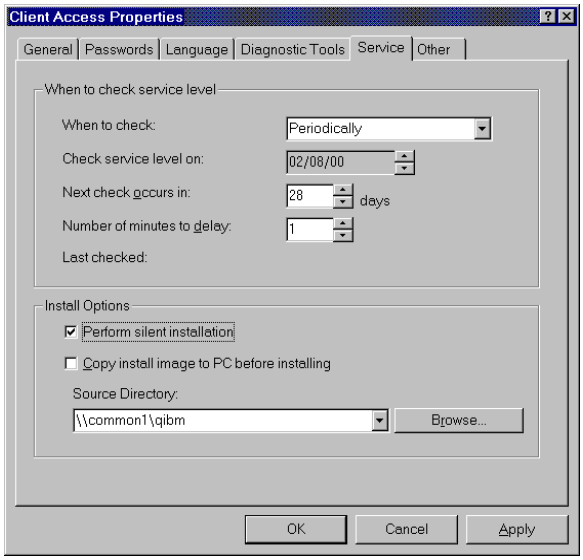
How to Start a Silent Install

Good way to get Service Packs and future releases to desktop users

- Will launch setup.exe from the install source.

You can schedule it to run

- Specify Setup.exe with the proper parameters specifying the response file location (or use CheckVersion)



Notes: Silent Install of Service Packs

Check the Perform silent installation box on the Service tab of iSeries Access Properties to do service level checks and service pack installation silently, without any user interaction. The silent service pack installation utility will use information from a response file to answer prompts automatically.

The response file is identical to the one used in silent installation, except you must specify the following name.
SLTSP.ISS - for service packs (This file must reside in the same directory as your service pack setup.exe does)
SLTUP.ISS - for upgrades (This file must reside in the same directory as your installation setup.exe does)

When you create your response file, you can set a parameter to reboot automatically. If you set this to yes, you should set SCHEDCHECK in a scheduled job so that the silent check service version runs during the night. If set to no, a message box appears asking the user to OK restarting the system.

To use a scheduling tool to start the iSeries Access for Windows check service level function. Map to the cwbckver.exe file located in the main directory where you installed iSeries Access for Windows, and enter the following (parameter 1) command line:
. . . \cwbckver.exe SCHEDCHECK
This will run check service level immediately, ignoring all of the iSeries Access Properties Service page settings except the service source directory, Copy install image to PC, and Perform silent installation settings. (The Service Source Directory is the system and service source directory where new fixes will be downloaded. This source directory can be a directory on the iSeries or on a separate server. Specify the location of this directory on the Service tab of iSeries Access Properties.)

Note:
If you are installing Service Packs over a slow communications line, you should download the Service Pack image files to your PC, from which setup and installation will be performed. Map to the cwbckver.exe file located in the main directory where you installed iSeries Access for Windows, and enter the following (parameter 3) command line:
. . .\cwbckver.exe SCHEDCHECK 0 LOCAL
Parameter 2 of the command line (Number of minutes to delay) must be 0. This will run check service level immediately, overriding the Copy install image to PC setting, and ignoring all of the iSeries Access Properties Service page settings except the service source directory and Peform silent installation settings.

See the online iSeries Access for Windows User's Guide for more information about SCHEDCHECK.

V5R2 Enhancements

- Install
  - A task tray icon has been added for silent installs so that users know when a silent install is occurring. Users will also be able to use this to track install progress.
  - Customized install CD images can now be created that include the SSL component.
- Windows support
  - Windows XP support is integrated
    - Also available via a PTF to V5R1M0 for Client Access Express
  - Windows 95 is no longer supported
  - The ODBC and OLE DB components have been ported to run natively on 64-bit Windows (on Intel Itanium hardware)
    - Most other components will run in 32-bit mode on 64-bit hardware (print drivers and SSL support will not run with 64-bit applications).

Connection Options

Environments Supported

iSeries and AS/400e Systems

- OS/400 V5R2
- OS/400 V5R1
- OS/400 V4R5
- Earlier versions of OS/400 have reached end of service

PC Operating Systems

- Windows 95*
- Windows 98
- Windows Me
- Windows NT 4.0
- Windows 2000
- Windows XP

* Not supported with iSeries Access for Windows, V5R2M0. For earlier releases of Client Access Express for Windows, see Information APARs for details on support on web page at www.ibm.com/eserver/iseries/access

- Information APAR II12268 for Windows Me
- Information APAR II11853 for Windows 2000
- Information APAR II12900 for Windows XP

Direct Connect

Connectivity

TCP/IP

- Token Ring LAN
- Ethernet LAN
- SLIP Dial-up
- PPP Dial-up
- over Twinax

Notes: Functions removed in V5R2

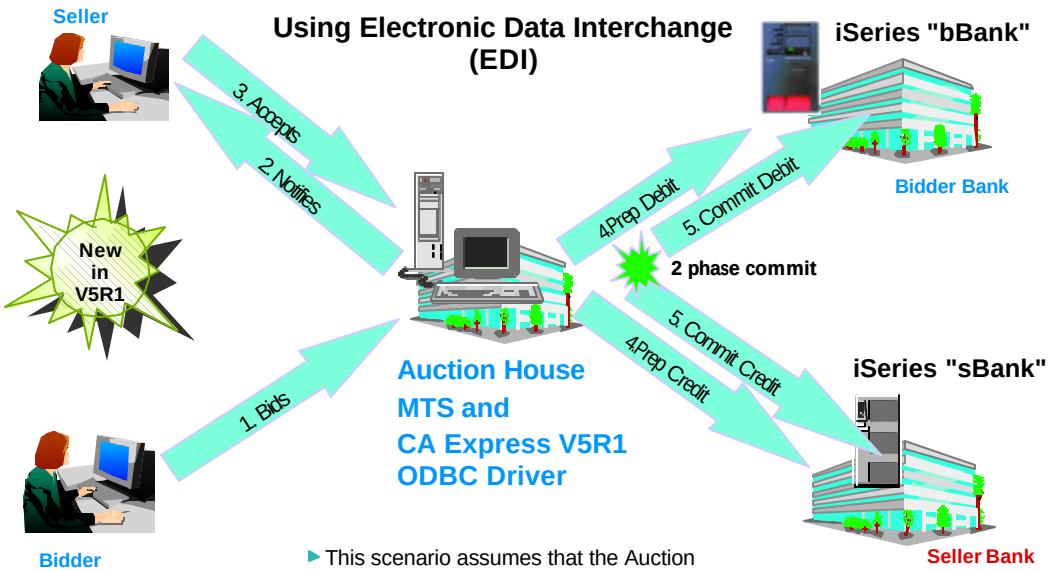
Removal of CE2 (56-bit encryption)

Not needed. All countries now support the fast 128-bit encryption.

Removal of support for Microsoft Windows 95 operating system

More current Microsoft operating systems ship Winsock 2 communications stack, however Microsoft Windows 95 operating system does not. iSeries Access for Windows is using new capabilities built on Winsock 2 to support new functions in later Microsoft operating system..
There is a version of Winsock 2 for Windows 95 that can be downloaded from the Microsoft's web site, however Windows 95 is not officially supports with the V5R2 version of iSeries Access for Windows (5722-XE1).

Microsoft Transaction Services (MTS)



- This scenario assumes that the Auction House would handle the transaction

Notes: What is ODBC MTS Support?

What is MTS?

- Microsoft Transaction Server (MTS) is a feature of the Microsoft Windows NT and 2000 Server O/S for development and deployment of three-tiered, server-centric applications built using COM technologies. MTS offers automatic transaction support, role-based security, access to other databases (including connection pooling), message queuing products and mainframe-based applications.

What is in Express V4R4/5 ODBC for MTS?

- Connection Pooling, which provides improved performance, is already available as the Microsoft ODBC driver manager handles it (ie, the Express ODBC driver doesn't do anything different or special). The user can turn connection pooling on and off via the ODBC Administrator's 'Connection Pooling' tab. This displays a list of the installed drivers, click on one to set whether connection pooling will be enabled or not and set the time-out value for unused connections.
- The Express ODBC driver was made 'Thread Safe' via V4R4 Service Pack SF59557. See Information APAR II11851 for information on thread safety.

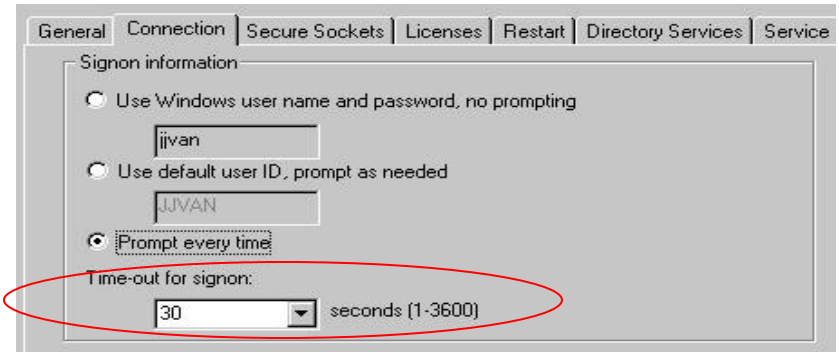
What is in Express V5R1 ODBC for MTS?

- OS/400 V5R1 UDB/400 supports the X/Open XA standard for transaction coordination that the ODBC driver uses to provide two phase commit. ODBC driver will accept the commands and send them to the iSeries via a new set of database host server functions.
- ODBC driver support the SQLSetConnectAttr(SQL_ATTR_ENLIST_IN_DTC) statement
- The user can turn connection pooling on and off via the ODBC Administrator's 'Connection Pooling' tab. This displays a list of the installed drivers, click on one to set whether connection pooling will be enabled or not and set the time-out value for unused connections.
- ODBC driver is thread safe (see Information APAR II11851 which describes thread safety and documents that since V4R4 Service Pack SF59557, our driver is thread safe).

- **MTS Requirements and Restrictions**
- MTS 2.0 (Windows NT with Option Pack 4.0 or Windows 2000) installed in the second tier machine. Distributed Transaction Coordinator (DTC) is included.
- Client Access Express V5R1 with ODBC installed in the same machine.
- OS/400 V5R1 for two phase commit.
- V5R1 MTS support is restricted to one transaction per connection at a time.

Connection Timeout Value - New for V5R1

- Rather than wait for a significant number of minutes for a connection attempt to timeout, shorten the timeout period for this PC.
- If the network is slow, you can give yourself a longer period of time to connect.
- The default is 30 seconds. If you had slow connections that worked on previous releases, but fail with V5R1, try increasing this value.



Data Compression - New for V5R1

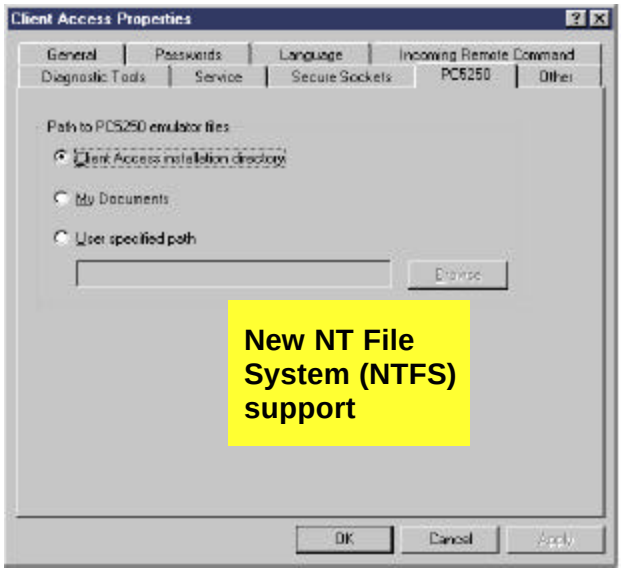
- V5R1 Client Access Express communications supports data compression.
  - This reduces network traffic and improves performance of data flows.
  - Unicode data is also handled.
- Data compression is used by ODBC and remote command.
  - This enables ODBC applications, Client Access Data Transfer, and iSeries Navigator to use compression.

Better Handling of NTFS

- In V5R1, problems accessing directories and registry entries with the NTFS file system have been addressed.
- Strategy is to store most user-writable files in " My Documents" directory where Microsoft recommends as way to handle.
- Tried not to move existing files when upgrading from an older release to V5R1.

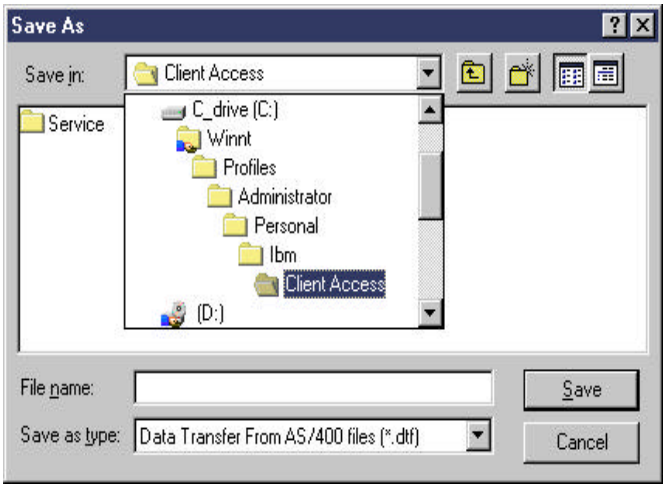
Windows NT and 2000 NTFS Users

- By default, PC5250 files still go into the Client Access Install directory.
- Recommend changing to "My documents".
  - Always should be writable.
- User can specify any path, but there is no guarantee that it will be writable.



Data Transfer Requests - NTFS

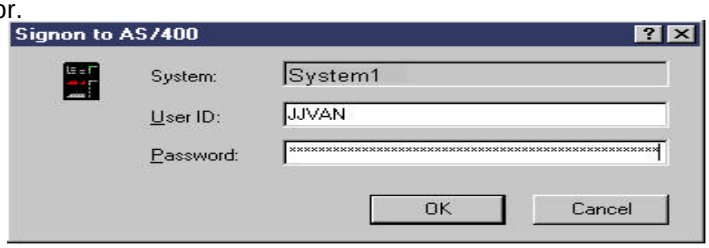
- Save and Open locations
- Default location
  - Personal or My Documents location (different for each operating system)
- If users have saved to or opened from a different location before, that location will displayed
- Data Transfer "remembers" this location
  - This way, users on upgraded systems that have saved transfer requests will continue to see them where they saved before



Security Considerations

Long Password Support

- Connections to V5R1 iSeries servers can now be done with 128-character passwords, for better security.
- The Password Level (QPWDLVL) must be set to 2 or 3 for these long passwords to be used.
  - A value of 0 is the default and allows 1 to 10-character passwords.
  - A value of 1 allows 1 to 10-character passwords and iSeries Netserver passwords for Windows 95,98,Me will be removed from the system.
  - A value of 2 enables 1 to 128-bit passwords.
  - A value of 3 enables 1 to 128-bit passwords, and iSeries Netserver passwords for Windows 95,98,Me will be removed from the system.
- Password level can be modified in green screen, or through Security ->Policies within iSeries Navigator.



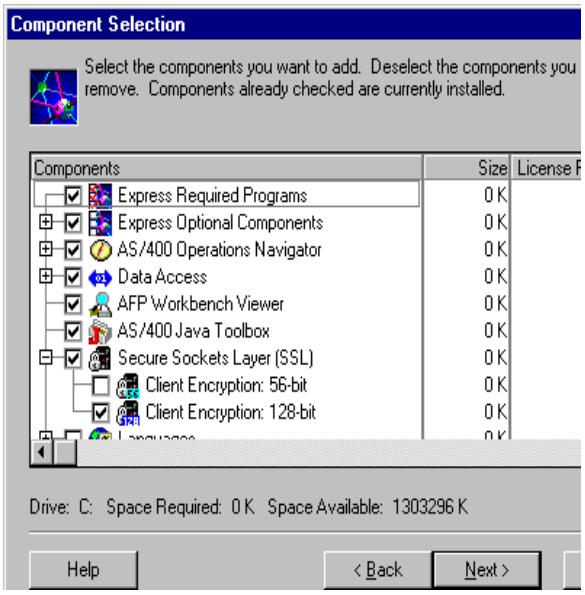
40-bit and 56-bit Encryption Removed

On iSeries

- Cryptographic Access Provider LPP (5722-ACx)
  - ~~AC1 = 40-bit (V5R1)~~
  - ~~AC2 = 56-bit (V5R2)~~
  - AC3 = 128-bit
- Client Encryption LPP (5722-CEx)
  - CE 1,2,3

On PC

- Client encryption (5722-CEx)
  - ~~CE1 = 40-bit~~
  - ~~CE2 = 56-bit~~
  - CE3 = 128-bit



Notes: SSL

Secure Sockets Layer (SSL) is a popular security scheme that allows the PC client to authenticate the server and encrypts all data and requests. Use it when transferring sensitive data between clients and servers. The transfer of credit card and bank statement information are examples of client/server transactions that typically take advantage of SSL. There is an increased cost in performance with SSL because of the added encryption and decryption processing.

iSeries Access for Windows includes optionally-installable support for Secure Sockets Layer (SSL) and a way to manage key databases with IBM Key Management. All functions of iSeries Access for Windows can communicate over SSL except Incoming Remote Command and Ultimedia. However, on a PC using an Intel 64-bit processor, such as Itanium, only 32-bit applications and connections can use SSL. iSeries Access for Windows allows SSL communications with the iSeries server at the 128-bit level of encryption.

Beginning in with iSeries Client Access Express for Windows (V5R1 version), client authentication is also available for PC5250.

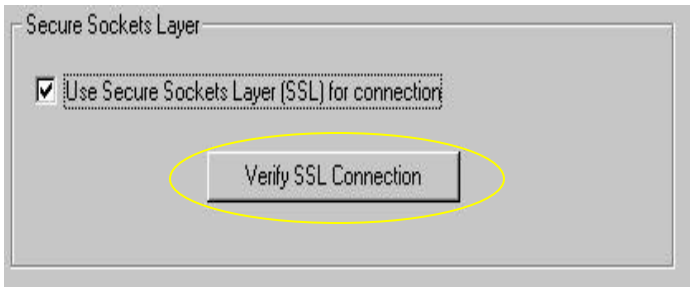
Downloading Certificate Authorities

- New for V5R1, button is available to download CA (encryption certificate information) from the iSeries
- The CA is automatically imported into the iSeries Access key database and the Java key database (required by iSeries Navigator)

Previously, a separately downloadable utility had to be downloaded from the web to do this.

Verify SSL Connections

- Also new for V5R1, a verify button has been added to the Secure Sockets properties page.
- This allow you to check if the iSeries Access servers are enabled for SSL.

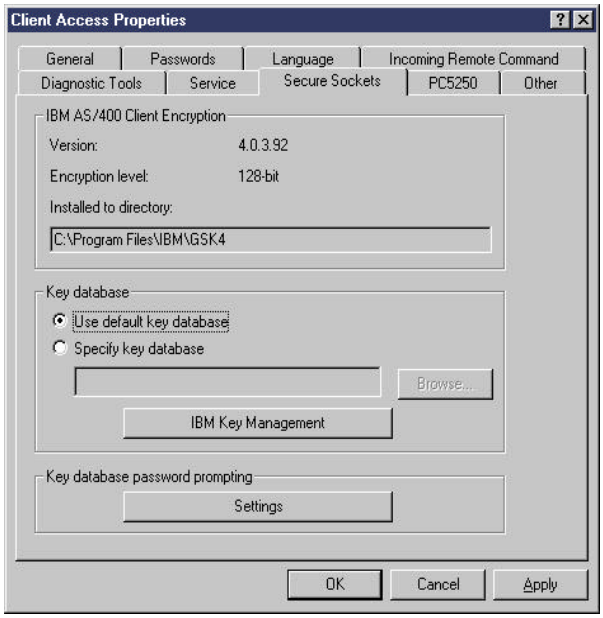


PC5250 Client Authentication

OS/400 V5R1 Telnet Server can be enabled for SSL client authentication

PC5250 V5.0 (in Express V5R1) takes advantage of SSL client authentication

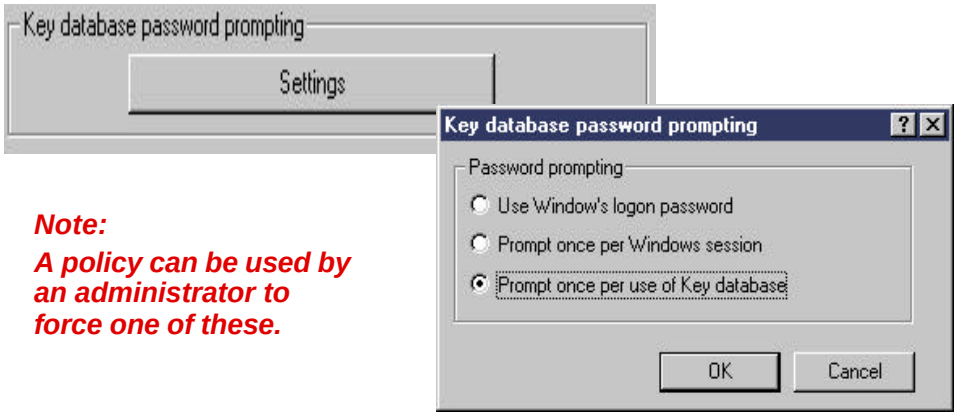
- SSL server authentication must always be configured before client authentication will work.
- No settings are required on the client to enable client authentication, but some preferences can be set.



Client Authentication Prompting modes

Users can choose how often they are prompted for access to the key database.

- It is important to authenticate that the user has access to the key database before the certificate is sent up to the iSeries. Otherwise, someone could simply move the key database file to another PC and have access to the certificate.



Note:

A policy can be used by an administrator to force one of these.

Notes: SSL Client Authentication

Client/Server Authentication
There are two ways which Secure Sockets Layer (SSL) verifies identification: Client Authentication and Server Authentication. Server Authentication occurs when the client verifies the identity of the server application by the server certificate passed down to the client application. Client Authentication occurs when the server verifies the identity of the client by the client certificate passed up to the server application. If Client Authentication is performed, Server Authentication needs to be done first.

Client authentication
In V5R1, the PC5250 Telnet client supports required SSL Client Authentication. You can also enable Client Authentication for the PC5250 Telnet client in V4R4 and V4R5 by issuing the following OS400 commands:

```
CALL PGM(QSYS/QTVSRV) PARM(*SSLCERT)
ENDTCPSVR SERVER(*TELNET)
STRTCPSVR SERVER(*TELNET)
```

To disable it, use the following commands:

```
CALL PGM(QSYS/QTVSRV) PARM(*NOSSLCERT)
ENDTCPSVR SERVER(*TELNET)
STRTCPSVR SERVER(*TELNET)
```

For V5R1, use Digital Certificate Manager (DCM) to change the iSeries Telnet server SSL properties to require Client Authentication.

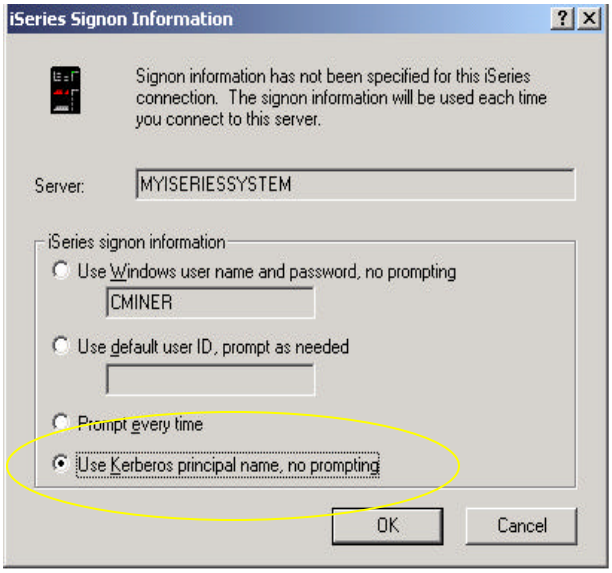
The PC5250 Telnet client supports required SSL Client Authentication.

- Client Authentication occurs when the server verifies the identity of the client by the client certificate passed up to the server application.
- For required Client Authentication, the client certificate must be passed from the client, be valid, and trusted by the server.

Notes
If the iSeries is used to create client certificates, a browser capable of importing/exporting secure PKCS12 files is required. (currently IE 5.x and Netscape 4.x have this compatibility). After the client certificate is created, you need to export it from the browser and import it into the PC SSL key database using IBM Key Management. When exporting client certificates from the browser, always include the private key.

The certificate authority that signed/created the client certificate needs to be imported into the PC SSL key database before the actual client certificate, or else the PC SSL key database will not be able to trust the client certificate and fail to import it. If more than one valid client certificate is in the PC SSL key database, you can either use IBM Key Management to change the default client certificate, or use the PC5250 configuration properties to allow selecting which one to use during a connection attempt.

Kerberos added to V5R2 version



- Support for Kerberos authentication of users
  - Kerberos ticket can replace the sending of userid and password from a PC to the iSeries.
  - Kerberos authentication as a new connection property to select

Notes: Kerberos Vs EIM

We all want something to keep all of our passwords in sync for all of our iSeries. As computing environments get more complex, and more and more servers are added, IT shops need a way to simplify the management of users across disparate systems and applications. While managing user identities can be challenging in a shop with multiple iSeries machines, the complexity compounds when you try to manage users across a network of dissimilar hosts. Additionally, users often have different names on different systems and even different names within multiple applications on the same system. System administrators aren't the only set of people who have multiple IDs, as application developers build applications that pull data from multiple, often disparate, systems. These developers often must resolve the differences in user IDs on all of these systems in order to make their applications function. And when they must, they often compound the problem by implementing a new user registry to control access to their application. Finally, industry studies say that a typical user has an average of 14 passwords to memorize between work, home, and various Web interfaces. Remembering all those passwords is tough. Requiring hundreds of users to manage 10+ passwords apiece makes our systems and networks inherently less secure.

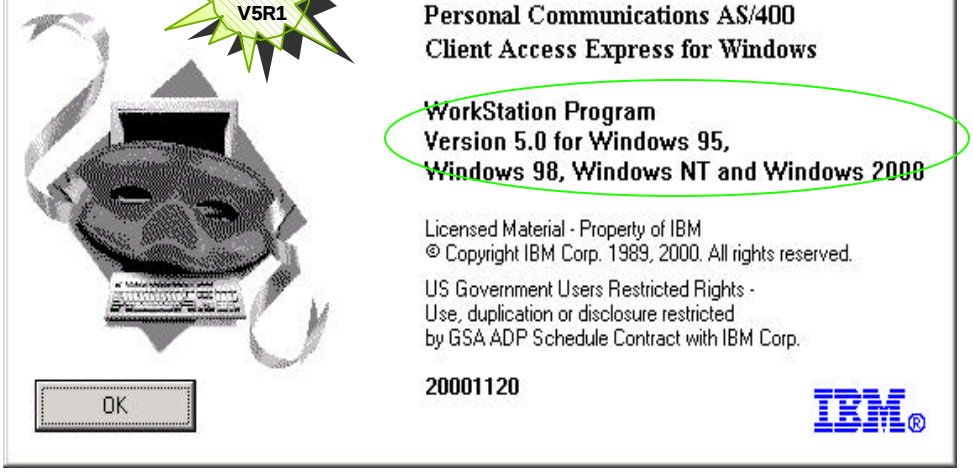
Kerberos offers many advantages over other ways of managing the sign-on process. Some of the more important advantages are the fact that passwords are not stored or transmitted in any clear text or de-cryptable form, user enablement (or disablement) is done at a single point, and there is no way for passwords to get out of sync because a user's passwords are not stored on every single system. Best of all, Kerberos is an industry standard that is already supported in Windows(W2K and above), most versions of UNIX, and Linux. And as IBM rolls out their OS updates through the rest of this year, look for support for EIM-enabled Single Signon on all of the servers in the eServer line.

On 4/29/2002, IBM announced Enterprise Identity Mapping,(EIM). EIM fits nicely into two prominent IBM initiatives: eServer and eLiza. IBM also announced a Single Signon application that will run on top of EIM, but please don't confuse the two. EIM is designed to allow system administrators to associate user registries (an EIM term) across a variety of systems. Single Signon is the first application built on top of the EIM infrastructure, and it improves other "password synchronization" schemes that have been available to iSeries customers to date. The Single Signon solution uses the Kerberos network authentication protocol standard to authenticate a user and then grants that user a one-time use, time-limited Kerberos "ticket" that the user can present to all of the Kerberos-enabled servers in the network. If the ticket is valid for the system in question, access is granted. If the ticket is not valid for the system (or has expired), access is denied. EIM and Single Signon are included with OS/400

PC5250 Display & Print Emulation

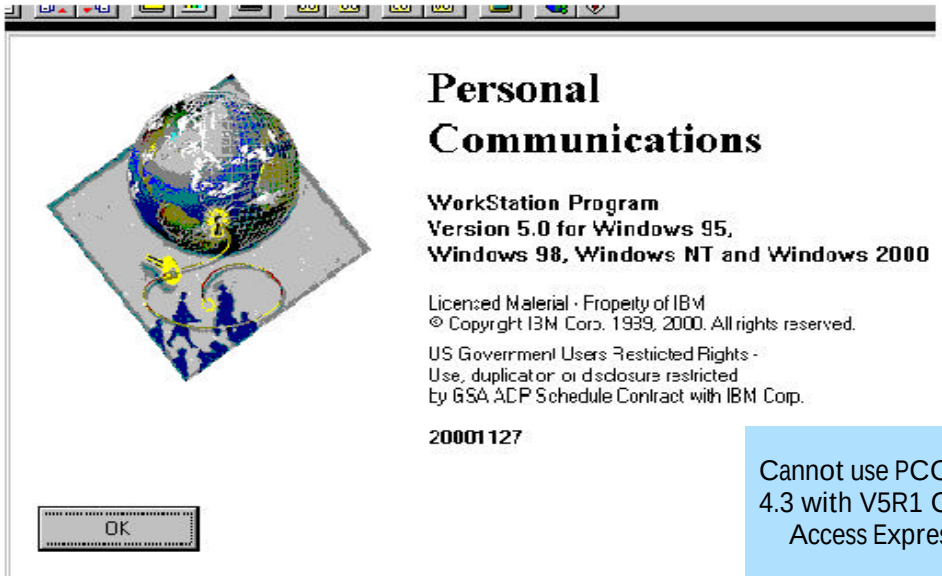
Client Access V5R1 Version has PC5250 V5.0

New in V5R1



Client Access V5R2 Version has PC5250 V5.5

PCOMM 5.0 (CSD1) compatible with PC5250 V5.0



Cannot use PCOMM 4.3 with V5R1 Client Access Express

Notes: PC5250 Emulation

PC5250 display emulation enables users to run AS/400 programs, work with OS/400 screens, and to send AS/400 output to PC printers. PC5250 display emulation supports up to 26 sessions to one or more AS/400 systems. To configure and start an emulator session:

1 Start the PC5250 configuration program.
2 Select Display for the session type.
3 Select the size for the session.

Note: Do not use End Connection *YES to log off your emulator session and disconnect from the AS/400. Instead, select COMMUNICATION from menu bar then select DISCONNECT.

.

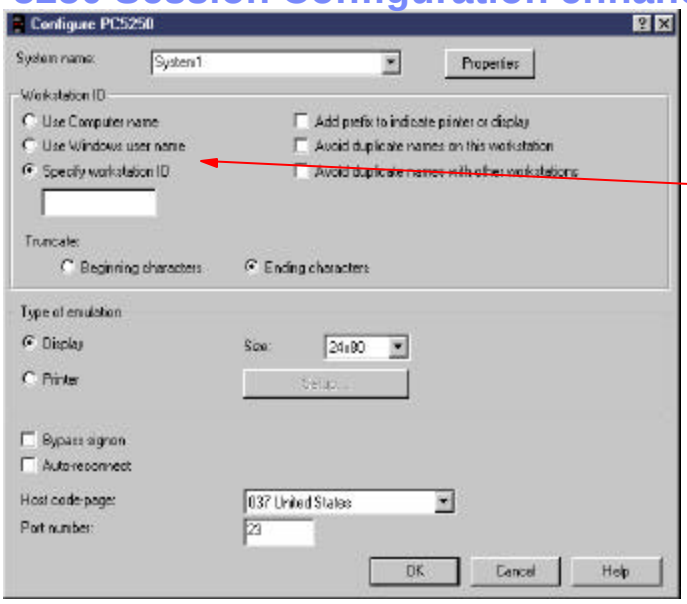
PC5250 print emulation can be used to print AS/400 output on printers known to the AS/400 -- this could be a network printer or a PC-attached printer. Up to 26 printer sessions can be simultaneously running to one or more AS/400 systems.

To configure and start a printer emulation session

1 Start the configuration program.
2 Select Printer for the session type.
3 Click the Setup button to configure additional options for the printer session.

Help text is available if you need additional help with the options.

5250 Session Configuration enhancements



- GUI dialog now provided for configuring workstation id
  - Use Computer name
  - Use Windows user name
  - Specify a workstation ID
- Can have multiple 5250 sessions with just one .WS profile

Notes: Give PC5250 Window titles more meaning

In shops that have several iSeries or AS/400 machines, many administrators find themselves and their users plagued by obscure PC5250 Window title naming. (A Window title is the descriptive phrase that shows up in the topmost line of any Windows program.) By default Client Access Express PC5250 places 3 things in the Windows title of every PC5250 session: the word 'Session' followed by an IBM-generated session-ID (usually A, B, C, etc); a separator character of a '-' (dash); and the session dimensions (screen size) of the active PC5250 window. This default format leads to such inspiring PC5250 Window titles as: Session A - [24 x 80], Session B - [24 x 80], Session C - [24 x 80]. Generally, each PC5250 Window title looks the same, and it doesn't give you much information about the session it represents or the OS/400 box the user is connected to; and those titles aren't used in just your PC5250 emulation Window they also appear in 2 other important places on your Windows desktop--in the minimized icon indicator for the PC5250 session that is shown in the Windows toolbar at the bottom of your screen and as a description for the program icons that appear when you use the ALT-TAB key combination to switch between open Windows programs. And--because many shops may have multiple active PC5250 sessions that are connected to different iSeries or AS/400 machines--it would be valuable if you could change PC5250 titles to include something more meaningful so that you or your users know which OS/400 they are switching to when they maximize a particular session.

Fortunately, this problem doesn't have to exist with the new PC5250 facility that has been provided to change the Windows title for your PC5250 session. It's easy to use, and it allows you to manually insert a new title or insert some automatic values into your PC5250 Windows title fields. Here's how to use it.

In your Express client PC5250, go into the Windows Setup screen by selecting Edit-Preferences-Appearances-Windows Setup from the menu bar. On the Windows Setup dialogue that appears, you'll see an area called Windows Title that has approximately eight check boxes in it. Those check boxes control what values are displayed in your session's Windows title, and you can check (select) as many of those options as you want. As you check or uncheck a particular option, notice that your Windows title immediately changes, even before you leave the Windows Setup dialogue. That allows you to see what your new Windows title will look like before you commit to it by clicking the OK button on the dialogue. Using this area, you can add the following eight values into the Window title for a particular PC5250 session:

see next page...

Notes: PC5250 titles (continued)

Long Session-ID: One of the defaults listed above, checking Long Session-ID places the word 'Session' in the title, immediately followed by IBM's automatically generated session-ID. For the first PC5250 session on a box, it adds 'Session A' to the title, 'Session B' for the second session, and so on.

Short Session ID: This checkbox functions like the Long Session-ID except that checking this value adds only IBM's Session-ID to the title without including the word 'Session' (i.e., A, B, C).

Session Name: This check box is accompanied by an entry that allows you to fill in your own literal for use in the Window title. You must use a literal that is 16 characters or fewer.

Session Profile: Checking this option adds the name of your session profile (the .WS file) to the session's Window title.

Session Dimensions: Another default, this check box adds the PC5250 screen size dimensions (ex, [24 x 80]) to the title.

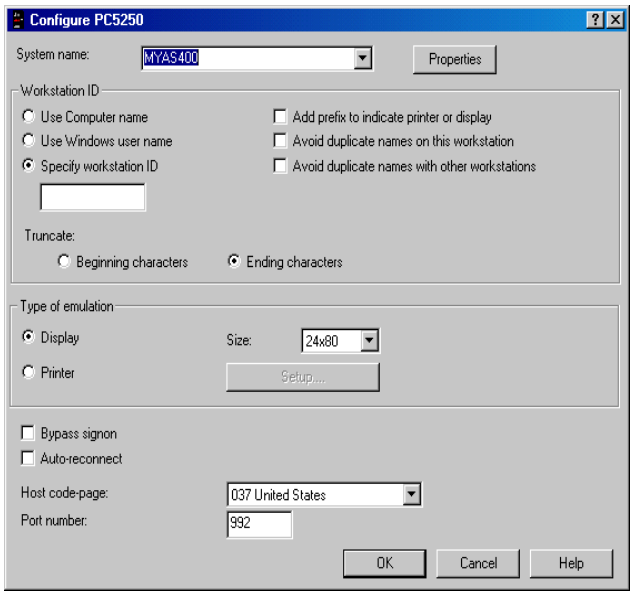
Session API Status: This box appends what IBM refers to as a visual indication of who is using this session -- a user or a DDE session -- to the Window title. Checking it merely adds the word 'USER' or 'DDE' to the title.

Separator: The separator check box comes with an input box that defines what separator character should be used between each literal that is added to the title when you select the other check boxes. This option is a default that uses a '-' (dash) as a separator.

Once you've made your selection and you're happy with the new title you've created, click the OK button on the Windows Setup dialogue and the session will display your new Window title. To save the title change as part of your .WS file, click on File-Save from the PC5250 menu bar and it will save your Window title changes to your .WS session configuration file.

Changing a Window title is one of those little features that may help your users locate and use their PC5250 emulation sessions more effectively.

PC5250 Display Emulation



- Administrator can maintain one .WS profile on the iSeries that all PC5250 sessions can use
  - ie, standardize the keyboard, display, etc, settings that are being used
- Long Passwords supported (V5R1)

PC5250 emulation - usability enhancements

PC5250 V5.0 - V5R1

- User can specify via the Connection dialog if a default user ID is to be used
- Option added to prevent recording/playback of hidden fields
- Color Remap enhancements
- New buttons added
  - to control the attributes that blink
  - Edit => Preferences => Edit..." panel (more consistent with RUMBA)
- Configuration option added to allow a prompt when exiting session so user can select to 'Save Changes'.
- VBScript updated to Version 5 to make it consistent with Internet Explorer 5

PC5250 V5.5 - V5R2

- Bypass signon can now be used in conjunction with Kerberos tickets to avoid a signon screen
- Wrap pasted text. Allows the paste of copied text across fields and lines without breaking in the middle of a word, or ending a line with an invalid word.
- Move +/- sign before the number when copying/pasting - for consistency with other Windows applications
- Improved error messages

PC5250 emulation - national language enhancements

PC5250 V5.0 - V5R1

- New DBCS Euro code pages for:
  - "1364 Korean"
  - "1371 Taiwan"
  - "1390 Japan Katakana Extended"
  - "1399 Japan Latin Extended"
- Working with Multiple NLVs
  - PC5250 now supports multiple NLVs in much the same manner that Client Access Express core does make it consistent with Internet Explorer 5

PC5250 V5.5 - V5R2

- Support has been added for Hindi and Japanese code page 1390/1399

Notes: PC5250 emulation - usability enhancements

Client Access Express ships with PC5250 V5.0. Enhancements this release include:

Administration enhancements
Will automatically generate a workstation name.
Ability to use multiple pcspd.dat files
Updates to the Exit Options dialog
Additional policy support

National Language Enhancements
Support of DBCS Euro code pages

Display emulation enhancements
Ability to type lowercase characters in a Shift-Caps lock state
Key repeating on function keys and Enter
Option to prevent recording/playback of hidden fields
Automatic font tuning
Color remap dialog enhancements
Menu bar rearranged/updated to more closely follow other Windows applications

Printer emulation enhancements
Enhanced computer output reduction
Better default printer recognition

General Usability

Option added to configuration to allow a prompt when exiting session so user can select to 'Save Changes'. Current configuration options allow "Always save" or "Never save" session changes on exit.
The Connection dialog allows user to specify if a default user ID is to be used

Display emulation

Color Remap enhancements - User can click on an area of the screen to change colors of a field type. The Undo function will keep a list of all the changes a user is making in the Color Remap screen, and undo just the most recent change
Buttons added to control the attributes that blink
New radio-button on the "Edit => Preferences => Edit..." panel (more consistent with RUMBA)
The Menu Bar terminology rearranged/renamed to be more consistent with Windows.
Option to prevent recording/playback of hidden fields

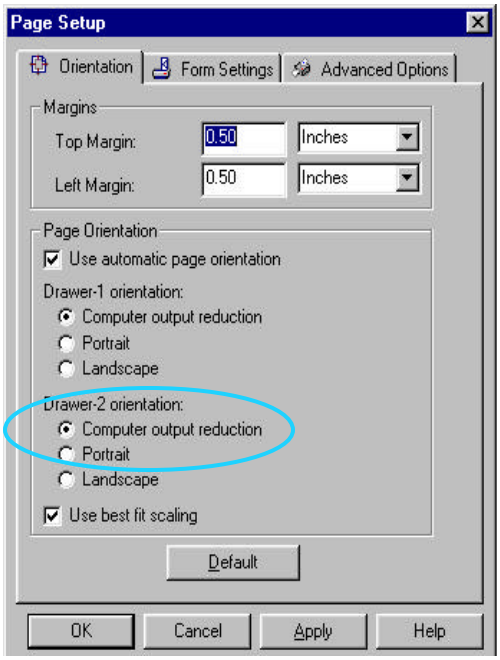
Application enablement

Upgrade VBScript to Version 5 to make it consistent with Internet Explorer 5.

PC5250 Printer Emulation

Printer emulation

- DBCS printer sessions can now use Enhanced Computer Output Reduction (COR) to adjust the width and depth of print output to fit on a page



Notes: Pros/Cons of various print emulation options

Host Print Transforms
Advantages
Can print AS/400 Office documents with imbedded images via HP LaserJet, HP DeskJet and IBM 4019 compatibles printers
Can print AFP documents to PC printers
Most consistent output when different emulators and Print Drivers are used
In the future will be able to do Postscript (level 1) via Image Print Transform Configuration which is specified on the printer device description (converts GIF, TIF, Postscript, BMP to Postscript, PCL, AFP) when Spool file type = User ASCII
Disadvantages
Takes host CPU to do transform
New Printers may require modifications of existing WSCSTs, the AS/400 does not automatically come with updated WSCSTs

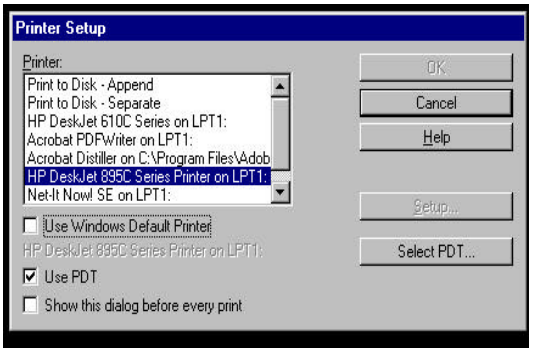
PDT - Printer Definition Tables
Advantages
WSF Printer Function Tables (PFT) can be converted to PDFs using PCSPFC.EXE
Emulator does most of work, bypassing print driver processing
PDT gives great flexibility (make printer do what it can do)
Usually faster
Disadvantages
Cannot print AS/400 office documents with imbedded images
Cannot print AFP documents
Cannot support Postscript data stream
New printers may require modifications of existing PDTs. They do not automatically come with updated PDTs
PDT is not supported for HP LasterJet printers that use PPA instead of PCL (eg, 820 Series)

GDI (Windows Print Drivers)
Advantages
Supports Postscript and Windows specific printers and any printer for which Windows has a driver
Standard use
Easiest to use
Only choice for some printers (eg, latest Canon BJ Printers, HP DeskJet 820 and some multi-function devices; fax/print/copy)
Disadvantages
Cannot print AS/400 office documents with imbedded images
Cannot print AFP documents
Print Driver can not be modified like HPT or PDT

PC5250 emulation - printer emulation

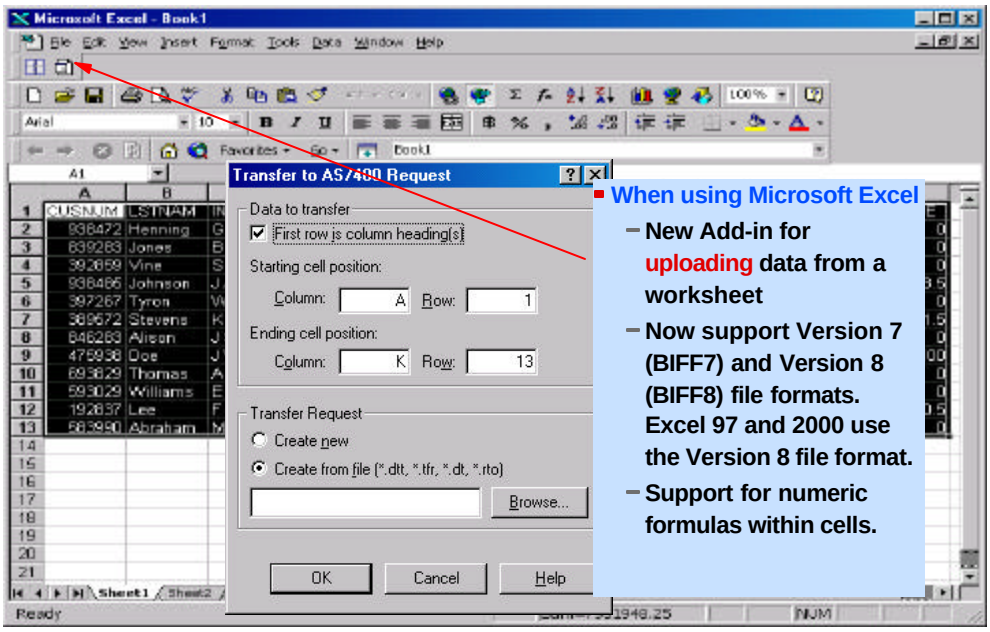
Option added to .WS profile to allow use of multiple pcspd.dat files

- Enables users to have different pcspd.dat files for special use with certain printer drivers.
- Also enables user to have a font mapping table (iSeries to PC) on a per-session basis output to fit on a page



Data Transfer

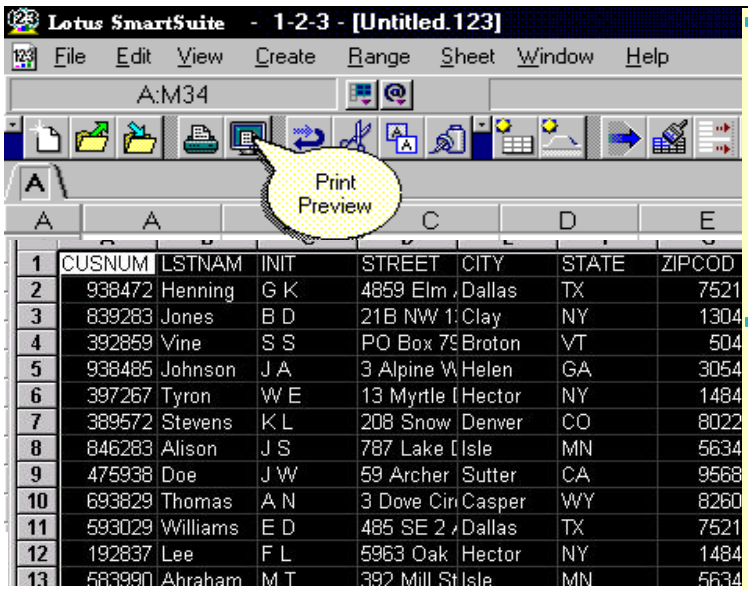
Data Transfer Enhancements for Excel users



When using Microsoft Excel

- **New Add-in for uploading data from a worksheet**
- **Now support Version 7 (BIFF7) and Version 8 (BIFF8) file formats. Excel 97 and 2000 use the Version 8 file format.**
- **Support for numeric formulas within cells.**

Data Transfer Enhancements for Lotus users



	A	A		C	D	E
1	CUSNUM	LSTNAM	INIT	STREET	CITY	STATE	ZIPCOD
2	938472	Henning	G K	4859 Elm	Dallas	TX	7521
3	839283	Jones	B D	21B NW 1	Clay	NY	1304
4	392859	Vine	S S	PO Box 79	Broton	VT	504
5	938485	Johnson	J A	3 Alpine W	Helen	GA	3054
6	397267	Tyron	W E	13 Myrtle D	Hector	NY	1484
7	389572	Stevens	K L	208 Snow	Denver	CO	8022
8	846283	Alison	J S	787 Lake D	Isle	MN	5634
9	475938	Doe	J W	59 Archer	Sutter	CA	9568
10	693829	Thomas	A N	3 Dove Cir	Casper	WY	8260
11	593029	Williams	E D	485 SE 2 A	Dallas	TX	7521
12	192837	Lee	F L	5963 Oak	Hector	NY	1484
13	583990	Abraham	M T	392 Mill St	Isle	MN	5634

- New in V5R1 version
  - Support 97 Edition (123)
  - When transfering a spreadsheet formula cell, Data Transfer nows tries to determine the numeric value.
    - If the formula does not resolve to a numeric value it will continue to pass a value of 0
- New in V5R2 version
  - Support Lotus 123 Version 9 file format
    - With 65,536 rows (Version 97 support 8,192 rows)

Notes: Enhancements for Excel and Lotus 1-2-3 users

Lotus 123 .123 file support added, The .123 file type is the standard type used in 97 Edition of Lotus 123. Lotus .WK4 support was added in release V4R4. The current .WK4 selectively installed option is expanded to include .123 support since these file types use the same LMBCS character conversion routines. The .123 support includes UNICODE character set support and support for new .123 numeric storage types. These types are defined in the Lotus .123 file format specification. Like .WK4 file support, .123 file format support includes the capability to read and write records to multiple sheets within a single workbook. Support for these types is also now included in the 'Create iSeries Database File' wizard.

Upload from Excel Add-In. Today, Data Transfer provides the ability to download information into an Excel spreadsheet. This function is integrated into the Excel by providing (1) an Excel add-in module called cwbtfxla.xll, (2) a toolbar icon/button the user can select to invoke a Client Access data transfer GUI, and (3) a menu option from the Excel "Data" pulldown menu called "Transfer Data From iSeries..." Data Transfer now extends its integration with Excel by providing an option to upload information from Excel to the AS/400. This additional integration include (1) an additional icon/button on the Client Access toolbar, (2) an additional menu option on the Excel "Data" pulldown menu called "Transfer Data To iSeries...", (3) a new dialog similar to the current download dialog, which allows the user to specify what data to upload and where to upload it to. A new DLL to be shipped and installed to provide this new capability.

Microsoft Excel BIFF7 and BIFF8 file support - support for the Microsoft Excel Versions 7 and 8 file formats. Version 7 support is simply an extension of the Version 5 file format which Data Transfer currently supports. The major change from Version 7 to Version 8 is that in Version 8 character data is stored as UNICODE. Like .WK4 file support, Excel Version 8 support includes the option to save to multiple sheets within a workbook. Support for these types also has been added to the Create iSeries Database File wizard.

Previously Data Transfer "ignored" formula cells and passed the default value of the field type to the iSeries. For example, a numeric formula cell found in Excel today would cause Data Transfer to pass a value of 0 to the iSeries database file. Data Transfer nows determines if the formula is for a numeric value. If it is, Data Transfer pulls the result of the formula from the cell and passes it to the iSeries database file. If the formula does not resolve to a numeric value, Data Transfer will continue to pass the default value for the cell type.

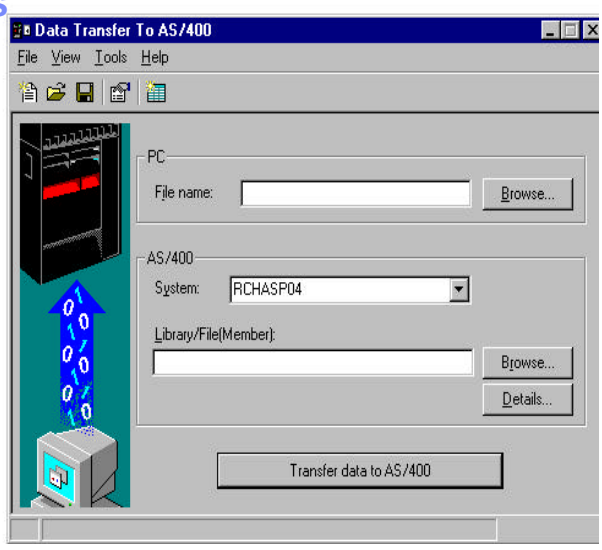
Data Transfer of PC files

New in V5R1 version

- Option added to retain trailing spaces from character data when writing to a Tab Delimited Text file.
  - This reduces confusion caused by not knowing whether field value was null or simply all spaces.
- Option added to ASCII text file details to allow numeric field to be padded with leading zeros instead of spaces.

New in V5R2 version

- Support for uploading more than 256 columns of data to a database file



Notes: PC files / HTML enhancements

PC Files

Option for retaining spaces in Tab delimited text files - Data Transfer previously removed trailing spaces from character data when writing to a tab delimited text file. If a field is all spaces, no data is written in the "cell". This can cause confusion on whether the field value was null, or simply all spaces. An option has been added for tab delimited text files to control this behavior. The default is to remove the trailing spaces.

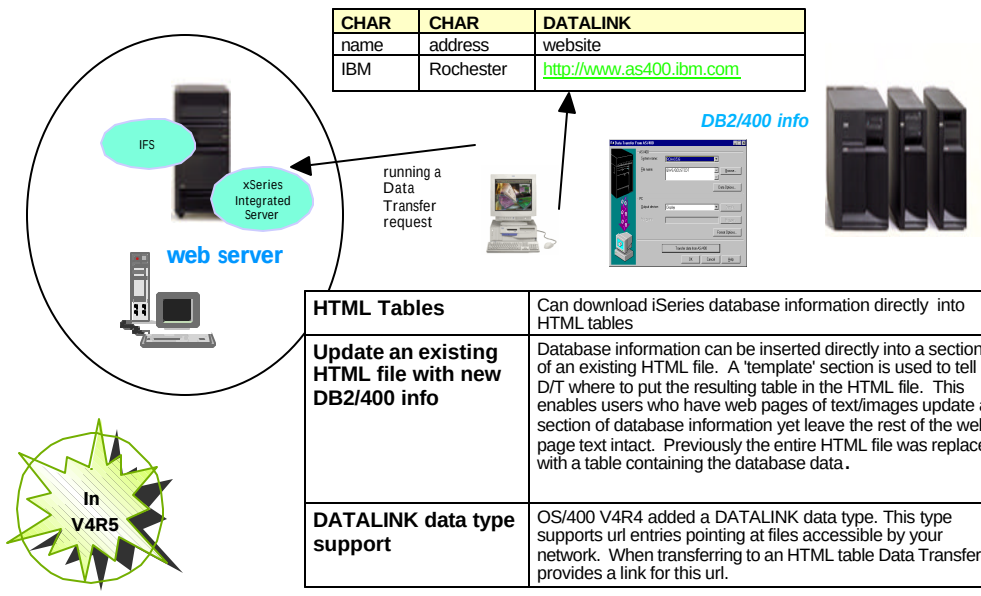
Option to have leading zeros on ASCII text fields instead of spaces - an option has been added to the ASCII text file details dialog to allow numeric fields to be padded with leading zeros instead of spaces. The default option will be to pad with spaces.

e-business (web serving) enhancements

Configurable file size for auto sizing option in download to HTML - since OS/400 V4R2 the autosize option of HTML has used 128 Kb as the default size for HTML files. An edit field is now available so users can easily set this value to something other than 128 Kb. This value will then be stored in the transfer request file and will be used when the request is opened or run.

UTF-8 character set support for HTML - currently, Data Transfer supports transferring ANSI and ASCII data into an HTML file. An option was added to the File page of the HTML Details panel to allow users to select writing to a UTF-8 file as well. This allows web pages to contain characters from many different character sets. Netscape Navigator and IE both support UTF-8.

Data Transfer enhances e-business

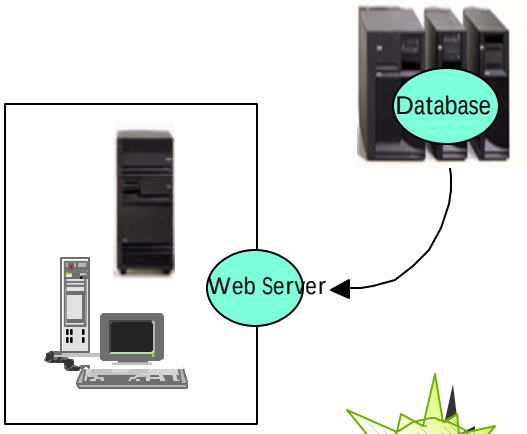


HTML Tables	Can download iSeries database information directly into HTML tables
Update an existing HTML file with new DB2/400 info	Database information can be inserted directly into a section of an existing HTML file. A 'template' section is used to tell D/T where to put the resulting table in the HTML file. This enables users who have web pages of text/images update a section of database information yet leave the rest of the web page text intact. Previously the entire HTML file was replaced with a table containing the database data.
DATALINK data type support	OS/400 V4R4 added a DATALINK data type. This type supports url entries pointing at files accessible by your network. When transferring to an HTML table Data Transfer provides a link for this url.

In V4R5

e-business (web serving)

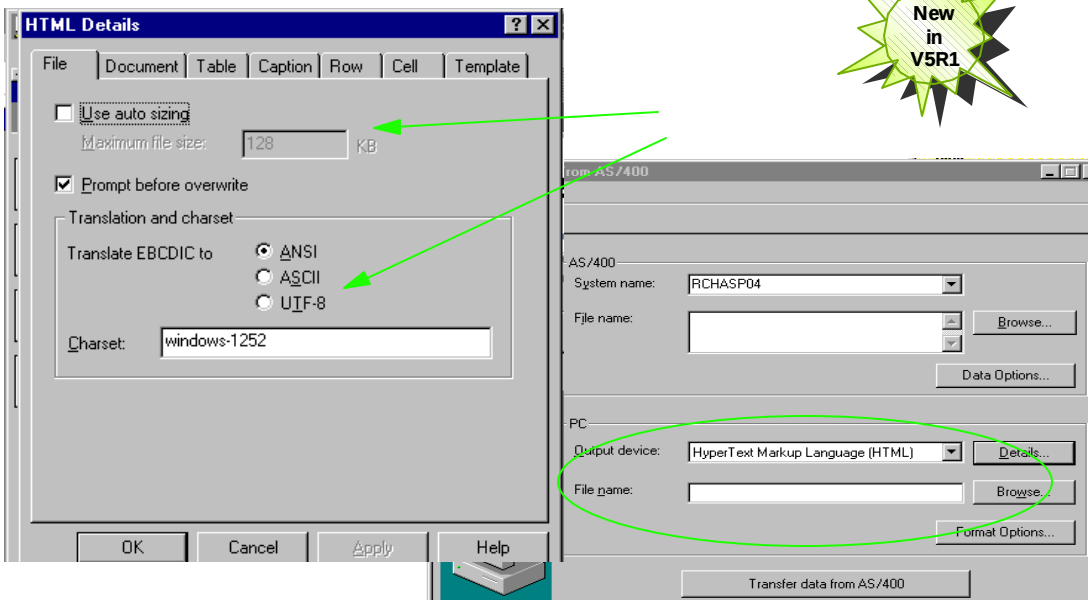
- Default autosize for HTML downloads is 128KB, now users can change this value
- HTML details panel now includes support for writing to a UTF-8 file (used by Netscape Navigator and IE). This allows web pages to contain characters from many different character sets.



New in V5R1

HTML Panels

New in V5R1



Data Transfer for iSeries database

- Support new iSeries database functions (V5R1 version)
  - Add support for 8-byte integers (BIGINT) - OS/400 V4R5
  - Support transferring data to/from float and double fields in database files. Conversion routines are used when transferring these types to/from PC files.
- Improve handling of CCSID data (V5R1 version)
  - An option added to the File Details panels to allow users to manually set the CCSID of their data.
  - Option added to allow BIDI users to separately control Data Transfer conversions.
- Data can be accessed from multiple IASPs (V5R2 version)

Notes: Data Transfer enhancements

Provide APIs for Data Transfer

Automation object support - customers continue to ask for a replacement for the "old" File Transfer API and also for better programmatic control over the current data transfer batch interfaces. iSeries Access for Windows has added ActiveX automation objects to meet these requests. Both high-level and low-level interfaces are provided. The high-level interface provides a fastpath approach for running database transfers. It requires minimal input and defaults many behaviors. The low-level interface provides programmatic access to most aspects of the Data Transfer GUI application, including the ability to create and save transfer requests.

iSeries Database

BIGINT (8 byte integer) support - OS/400 V4R5 (UDB) added support for 8 byte integers. Data Transfer nows supports this new column type for both upload and download. For some files types (such as BIFF and WK4 where double is the largest numeric value supported), roundings may occur. Users will be warned when this happens.

Support for transferring data to and from float and double database fields on the iSeries - the database API currently supports float and double fields in iSeries database files. Data Transfer conversion routines and file types now support transferring these types to and from PC files and the iSeries

Improve handling of CCSID

Global request priming from set values - to help users set up default requests for such items as 65535 data conversion, an option to save a data transfer profile as the "template" for newly created data transfer requests has been added. To accomplish this, a 'Save Template' option is added to the user interfaces. This template information is stored in the registry.

User-defined CCSID setting in GUI - an option was added to the File Details panel for both Data Transfer To iSeries and Data Transfer From iSeries to allow users to manually set the CCSID of their data. If a user defines their own CCSID, Data Transfer will convert data using that CCSID. This option will be stored in the transfer request file and be used when the request is opened or run. This option is also added to allow BIDI users to separately control Data Transfer conversions from the rest of the conversions performed in iSeries Access.

Data Transfer for programmers...

- New ActiveX Automation support for all Data Transfer GUIs
  - ActiveX automation objects for transferring database data to and from iSeries and AS/400e servers.
  - These objects provide both a high-level and a low-level interface.
  - These objects can be used from Visual Basic and other languages which support ActiveX automation.

Usability enhancements

Usability improvements

- Option added to Data Transfer Properties, Connections page, to allow user to configure which User ID to use with that specific transfer request when it connects to an iSeries.
- Status Bar added to main Data Transfer windows
- SSL icon on Status Bar to indicate if Data Transfer is connected over SSL
- When cursor is positioned over menu items on Toolbar, extended tool tip information will be provided
- Properties setting to display/not display warnings occurring while transferring data

Notes: Data Transfer enhancements

Usability improvements

Use Windows logon, default mode, or specify a user id for a transfer request - an option was added to the Connection page on the Properties panel to allow users to configure which user ID to use to connect to the iSeries. This option is stored in the transfer request file and will be used whenever the request is opened or run.

Setting for displaying/not displaying warnings which occur while transferring data to or from the iSeries. This option is available on the Display page under Properties. It can also be stored in the transfer request file and will be used when the request is opened or run.

Aa status bar was added to the main Data Transfer application windows

A 'lock' icon for SSL is on the status bar to indicate whether or not Data Transfer is connected over SSL.

When cursor is positioned over menu items or the toolbar, a panel will display extended tool tip information.

Lock icon for SSL on status bar. - a status bar was added to the main Data Transfer application windows and it contains an icon to indicate whether or not Data Transfer is connected over SSL. It will also contain a panel to display extended tool tip information when the cursor is positioned over menu items or the toolbar.

IBM eServer iSeries

iSeries Access for Programmers
Application Enablement

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iSeries Access Middleware

iSeries Access Function	Where it fits	Value to iSeries
iSeries ODBC driver	– Industry-standard Windows database access method. – Supports Microsoft V3.0 specification.	– Access to DB2 UDB for iSeries
iSeries OLE DB provider (driver)	– Microsoft's universal data access standard interface for Windows applications working with relational and non-relational data. – Supports OLE DB 2.5 – Can use ADO 2.2 and 2.5	– Access to DB2 UDB for iSeries – Can use OS/400 Data queues, Remote Commands, Stored Procedures, Distributed Program Calls...
Visual Basic Wizards	– Can use VB 6.0	– For use with AS/400 OLE DB provider
– Data Queues – Remote Commands – Stored Procedures – Distributed Program Calls – SQL APIs – Data Transfer APIs	– Active X Automation Controls & Objects -- industry-standard Windows programming interface	– Works with OS/400 Data queues, Remote Commands, Stored Procedures, Distributed Program Calls... – Access to DB2 UDB for iSeries
PC5250 enablers	– Industry-standard EHLLAPI, WinHLLAPI, DDE for code conversion. Includes ActiveX controls	– For 5250 applications – ENPTUI for enhanced 5250 datastream functions
iSeries Toolbox for Java (GUI classes, JDBC...)	– Portable across platforms.	– Access to DB2 UDB for iSeries – Can use OS/400 Data Queues, Stored Procedures, Remote Commands...)

Notes: Middleware

iSeries ODBC Driver

ODBC is a Microsoft-defined standard database access interface for Windows users. Client Access provides an iSeries ODBC driver to enable any ODBC 32-bit Windows application (written to MS V3.0 specification) to transparently access DB2/400 information. iSeries ODBC driver supports Dynamic SQL access at static SQL speed (4x improvement), Block Fetch, Insert, Update, & Delete functions, takes advantage of DB2/400 Optimizer, supports Stored Procedures (result sets from stored procedures), SQL Collections do not need to be defined

iSeries OLE DB Provider (driver)

OLE DB is a Microsoft 32-bit Windows architecture for universal data access. OLE DB is defined as a multi-platform access method for relational and non-relational data, and is a superset of ODBC. Client Access includes an iSeries OLE DB Provider so that any PC application written to this interface can be used to access iSeries resources. The iSeries OLE DB Provider can be used for record level access, SQL calls, stored procedures, data queues, programs, and CL commands. The OLE DB and ActiveX toolkit which provides Visual Basic wizards and other sample programs is provided as part of the Client Access Toolkit.

ActiveX Automation Objects

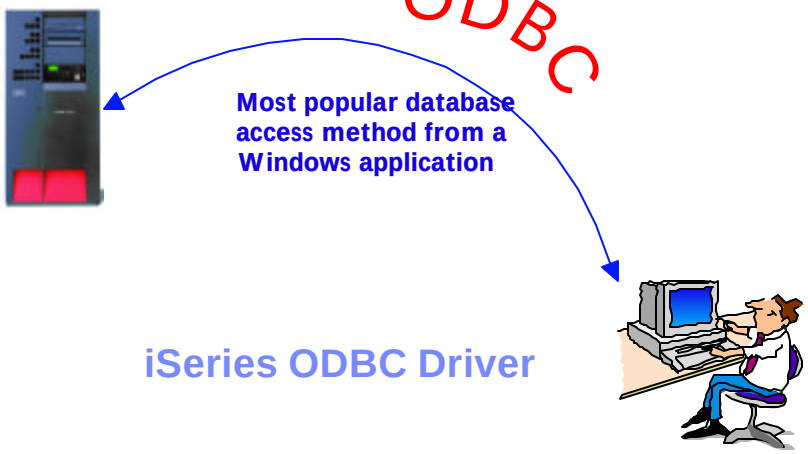
ActiveX automation objects are provided for Client Access data queues, remote commands, and distributed program calls. Many popular client languages, such as Visual Basic, Delphi, PowerBuilder, and Visual C++, support ActiveX automation objects, and now these programs can use the Express client key components to develop client/server applications between the PC and the iSeries. Online help (including example code) is provided and can be accessed from object browsers.

iSeries Toolbox for Java

The iSeries Toolbox for Java includes a series of low-level APIs for accessing AS/400 data and resources from a Java program. It also includes a set of GUI classes to present iSeries data to the user from a Java program. The GUI classes use the Java Swing 1.0 (JFC 1.1) framework. This is a separately installable option of Client Access install. Once installed through Client Access, future updates to the Java Toolbox will be delivered to PC users through the Client Access 'service' function (ie, whenever a PTF for the Java Toolbox is applied to the iSeries Check Service Level recognizes the new level and downloads the fix to the client).

PC5250 Enablers

- EHLLAPI support is provided so programmers can add a graphical interface to applications written to a 5250 interface to perform functions such as host data access, screen scraping and host automation. This industry-standard 32-bit support also enables applications currently written to another emulation products' EHLLAPI to migrate and run unchanged using PC5250.
- WinHLLAPI support is implemented so customers who have WOSA-compliant applications can migrate to PC5250.
- PC5250 DDE now includes code conversion support. This provides a more consistent set of DDE APIs thus making it easier to migrate applications across different platforms.
- Enhanced Non-Programmable Terminal User Interface (ENPTUI) provides 5250 datastream functions such as ability to show radio buttons and check boxes on end-user desktops that can support these functions (such as a PC versus a 5250 terminal).
- PC5250 ActiveX Controls have been added and can be used in any application that supports ActiveX controls (such as Visual Basic, C++, etc). These controls enable host applications to use a list box or button.



iSeries ODBC Driver

New in V5R1

ODBC Enhancements - V5R1 version

Compliant with Microsoft ODBC Version 3 specification

- **PC applications can now take advantage of new functions included in the 3.5 Specification.**
- **All of your current ODBC applications should continue to work as they do today.**

When connecting to OS/400 V4R5 or later

- Thread-safe ODBC driver
- Direct conversion of data to the column CCSID for parameter markers in SQL statements
- Support for the BIGINT data type
- Enhanced diagnostic support

When connecting to OS/400 V5R1 or later

- Support for Unicode SQL Statements
- Support for Static Cursors
- Support for data compression in datastreams to and from the iSeries

OLE DB

Microsoft-recommended access for 32-bit Windows applications

- **Record level access**
- **Data Queues**
- **Stored Procedures**
- **ODBC**
- **...**

iSeries OLE DB Provider

☞ plus Visual Basic Wizards

OLE DB Provider Enhancements

OLE DB Provider is enhanced to support OLE DB 2.5

OLE DB provider will work with new Windows products such as

- ADO 2.1 - this ships with Microsoft IE 5.0 and Office/2000 products
- ADO 2.5 - this ships with Microsoft Windows 2000
- Visual Basic 6.0 OLE DB controls and wizards
- An OLE DB interface is provided to support ADO recordset Seek (ADO 2.x)

Custom properties added

- Force Translate (translate CCSID 65535 data)
- Default Collection
- Catalog Library List
- Convert Date Time To Char

OLE DB Provider Enhancements (continued)

OLE DB Provider is enhanced to support OLE DB 2.5

When connecting to OS/400 V4R5+, OLE DB supports the following data types:

- BIGINT
- Large Objects (LOBs)

When connecting to OS/400 V5R1, OLE DB supports:

- Static cursor types

Other OLE DB enhancements

- Unicode support
- Optimistic Lock types
- Better SQL Server support
- Really connect at open time

New capabilities in V5R2 version

Working with iSeries Database

- ODBC and OLE DB
  - Supports ROW-ID
  - 64K SQL Statements
  - additional descriptor information
- OLE DB
  - Supports updatable cursors for the SQL dialect
  - Is thread safe
    - Also available via a PTF to V5R1Express

If you wish to write in Java...

Use the IBM Toolbox for Java that is shipped with iSeries Access

IBM Toolbox for Java

Is set of Java(TM) classes that allow you to use Java programs to access data on your iSeries and AS/400e servers

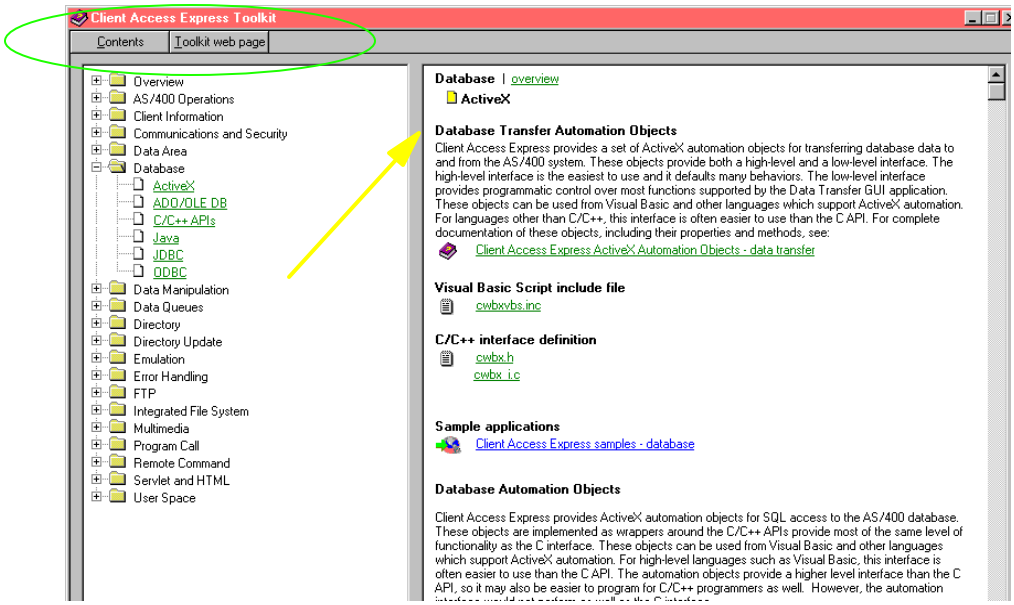
- You can use these classes to write client applications, applets, and servlets that work with data on your iSeries
- You can use these classes to write Java applications that run on the iSeries Java virtual machine (JVM)

IBM Toolbox for Java uses the iSeries Host Servers as access points to the system

- Each server runs in a separate job on the server, and each server job sends and receives data streams on a socket connection

You do not need to install or use iSeries Access for Windows to use the IBM Toolbox for Java

iSeries Access Toolkit



Notes: Programmer's Toolkit

The Toolkit contains sample programs, and documentation, providing a single interface to assist in your iSeries application development.

The Toolkit contains links to header files and Windows Help files installed on your PC.

It also contains Internet links to sample programs, documentation, and other helpful information.

The Programmer's Toolkit is an optionally installable piece of iSeries Access for Windows.

Programmers Toolkit enhancements

Data Transfer ActiveX Automation support

- The database transfer automation objects provide a programming interface for the Data Transfer functionality.

Visual Basic wizards

- Data types (BigInt, Large Objects (LOBs))
- Set cursor type and lock type properties
- Generate recordset seek code for tables record level access

Tools for Java

- Two new Java tools, GUI Builder and Resource Script Converter, are included in Express.
  - The GUI Builder is a visual editor for creating Java dialogs, property sheets and wizards.
  - The Resource Script Converter converts Windows user interface elements into a form usable by Java programs. These tools are an optionally installable component of the Toolkit, and require the current JRE and Java Toolbox.

Message Application Programming Interface (MAPI)

The MAPI function was removed in version V5R2 of iSeries Access for Windows

- MAPI is a set of program interfaces used by mail applications but are now becoming obsolete.
- Some customers may still use MAPI because it ties directly to the system directory (SDD) for storing user information.

If you are using SDD, we recommend that you migrate to using LDAP as a directory solution.

- Publishing directory information to LDAP can be easily accomplished through the use of iSeries Navigator.
- By right-clicking on a system name, and choosing "Properties", you can go to the "Directory Services" tab to select user information to publish.
- Within minutes, the user information is published to LDAP.
  - For more details, refer to the Synchronize System Distribution Directory to LDAP (QGLDSSDD) API in the Information Center.
  - The LDAP Web site at www.ibm.com/eserver/iseries/ldap also has information on LDAP and publishing.

Other Functions in iSeries Access for Windows

iSeries Navigator
Operations Console
EZ-Setup

Notes: Sources of Technical Information

iSeries Access web site is http:// www.ibm.com/eserver/iseries/access

- Contains the latest information about the entire family of Client Access products, including Client Access Express for Windows, such as late breaking news, Information APARS, FAQs, information on beta programs, how-to information, service and support, new product announcements, plus much more.
- Provides links to other important web pages, such as iSeriess Navigator, Operations Console, AS/400 NetServer, etc

Client Access Express for Windows Redbook (SG24-5191)

- Access online by going to Client Access web page and selecting AS/400 Client Access Express for Windows: Implementing V4R4M0, SG24-5191 from main page.

AS/400 Information Center

- Contains information on workshops, tools, and other technical information on topics such as Client Access, Operations Navigator, Domino for iSeries and more. Also provided is an AS/400 Client Access Express Administrators Guide which has technical information on the Express client content for advanced users, such as administration and programming documentation. This can be accessed by going to the Client Access web page, then selecting 'AS/400 Information Center' from main page.

AS/400 Online/Softcopy Library

- Is an entire library of AS/400 books organized into bookshelves, accessible on CD or on the internet. The books on the CD-ROM can be read using the IBM Library Reader program, provided on the CD-ROM.

Toolkit for iSeries Access for Windows

- Toolkit ships with Express. Install it when you install Express, or later use Selective Install to get it. It also has links to additional important programming information that is contained on the Client Access web page.
- Information on OLE DB and Visual Basic Wizards is ats http://www.ibm.com/eserver/iseries/access/oledb
- AS/400 PartnerWorld for Developers web page (http://www.ibm.com/eserver/iseries/developer/ then search on ODBC) contains detailed tips and techniques for developing ODBC applications.

Web Information

- Client Access web page has latest up-to-date information
  - http://www.ibm.com/eserver/iseries/access
- For Information on
  - Information APARs on specific topics, such as Windows 2000 support
  - Access to all Red Books and other Reference Manuals
  - FAQs, Articles, links to Administrator Guide...
- Select 'Additional Links'
  - iSeries NetServer for information on setting up your file and print serving
  - Operations Console for information on setting up a PC as your system console
  - iSeries Navigator for OS/400 administration

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