IBM

Access your database with iSeries Access

ibm.com
the power of one

**IBM eServer iSeries
ITSO Technical Forum 2006**

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Redbooks
International Technical Support Organization

Abstract

Did you know that iSeries Access provides many options for working with information in your iSeries database (DB2 UDB for iSeries)?

Learn how easy it is to run database requests using the programs and GUIs in Access for Web, iSeries Access for Windows, and iSeries Access for Linux. In this session, you will learn how to access the iSeries database through:

- Desktop applications that utilize the .NET, ODBC, and OLE DB drivers in iSeries Access

- With no knowledge of SQL or its syntax, you can find, update, add, insert, and delete information and records in an iSeries database.

- Use SQL Wizards to build SQL statements and create database tables

- Upload PC data to iSeries database through easy-to-use GUIs

- Run predefined requests to upload or download data

- How to create dynamic queries for other end users to run

- Transform Query Manager and Query/400 SQL statements into browser-based statements so they can run without requiring 5250 OLTP CPW capability.

Packaging & Ordering
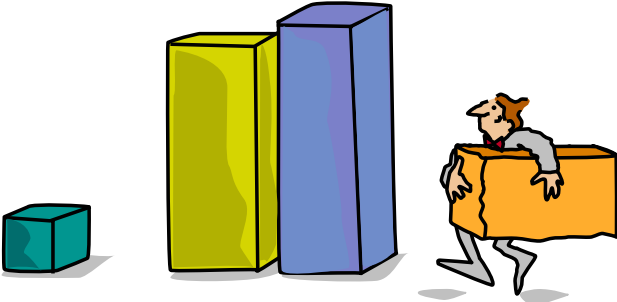
iSeries Access Family Packaging

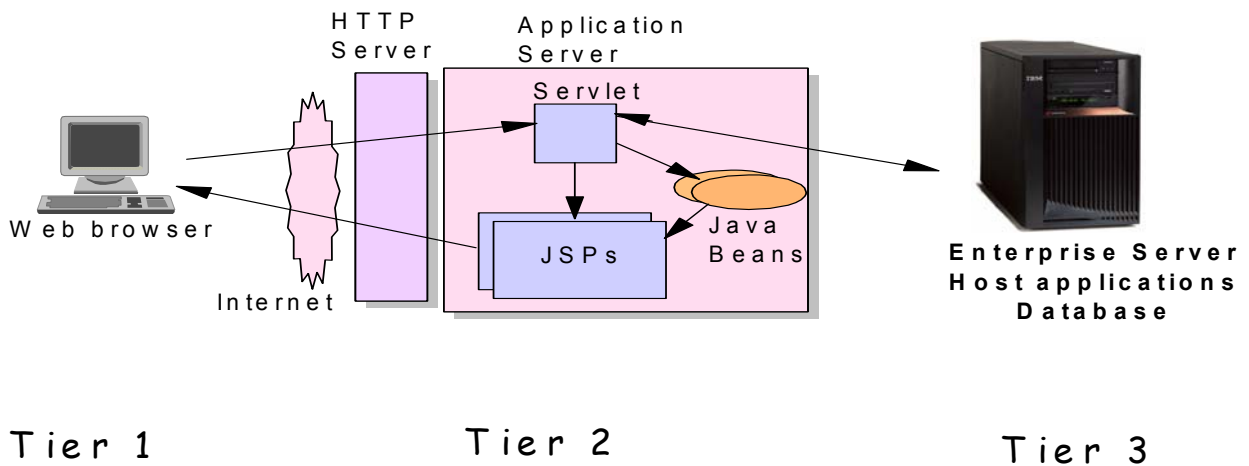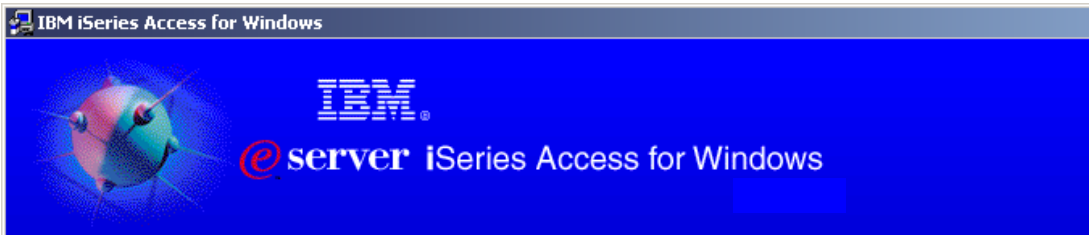| V5R4 5722-XW1 iSeries Access Family	V5R3 5722-XW1 iSeries Access Family	V5R2 5722-XW1 iSeries Access Family
• iSeries Access for Windows, 5722-XE1, V5R4	• iSeries Access for Windows, 5722-XE1, V5R3	• iSeries Access for Windows, 5722-XE1, V5R2
• iSeries Access for Web, 5722-XH2, V5R4	• iSeries Access for Web, 5722-XH2, V5R3	• iSeries Access for Web, 5722-XH2, V5R2
• iSeries Access for Linux, 5722-XL1	• iSeries Access for Linux, 5722-XL1, V1.10	• iSeries Access for Linux, 5722-XL1, V1.0
• iSeries Access for Wireless, 5722-XP1, V5R4	• iSeries Access for Wireless, 5722-XP1, V5R3	• iSeries Access for Wireless, 5722-XP1, V5R2
	• HATS Limited Edition V5.0, 5724-F97-01	• HATS Limited Edition V4.0, 5724-D34-01
		• WebSphere Host Publisher, 5724-B81, V4.0 and V4.01
	V5R3 customers not wanting to upgrade to i5/OS V5R4 but want the new V5R4 iSeries Access Family clients can order no-charge Feature No. 2648 of Product No 5722-XW1.	V5R2 customers not wanting to upgrade to i5/OS V5R3 but want the new V5R3 iSeries Access Family clients can order no-charge Feature No. 2647 of Product No 5722-XW1.

Desktop Requirements

iSeries Access for Web is installed and runs on the iSeries server. It requires a browser to be running on end user desktop	iSeries Access for Windows must be installed and running on one of the following operating systems	iSeries Access for Linux must be installed and running on one of the following operating systems
Internet Explorer 6.0 with Service Pack 1 (Windows)	Microsoft Windows XP Professional	Linux on Intel processor
Netscape 7.0 (Windows® and Linux)	Microsoft Windows 2000	Linux on Power PC
Netscape 4.7 (AIX®)	Microsoft Windows 2003 Server	i5 / iSeries Logical Partition
Opera 7.11 (Windows® and Linux)		SuSE SLES 9 (required for 64-bit version)
Mozilla 1.3 and 1.4 (Windows and Linux)	Microsoft Terminal Server Edition (MTS) on any of above O/Ss. It supports Citrix, thus can be used from Thin Clients	3-tier environments ▪ Virtual Network Computing (VNC) ▪ Linux Terminal Server Project (LTSP)
Mozilla Firefox 0.9 (Windows and Linux)	Microsoft Windows NT 4.0 (N/A V5R4 client)	

Server Requirements

iSeries Access for Web requires HTTP and a web application server to be running on an iSeries

HTTP
Server

Application
Server

Servlet

Web browser

JSPs

Java
Beans

Internet

Enterprise Server
Host applications
Database

Tier 1

Tier 2

Tier 3

iSeries Access for Windows and iSeries Access for Linux have no special requirements for iSeries

IBM iSeries Access for Windows

IBM
@server iSeries Access for Windows

iSeries Access for Windows
5722-XE1
V5R4

iSeries Access for Windows

innovative...
integrated...
impressive...
...iSeries

iSeries Access for Windows... the strategic
choice for interacting with and managing
your iSeries servers.

www.ibm.com/eserver/iseries/access

www.ibm.com/eserver/iseries/access/windows

Supports Microsoft operating environments...
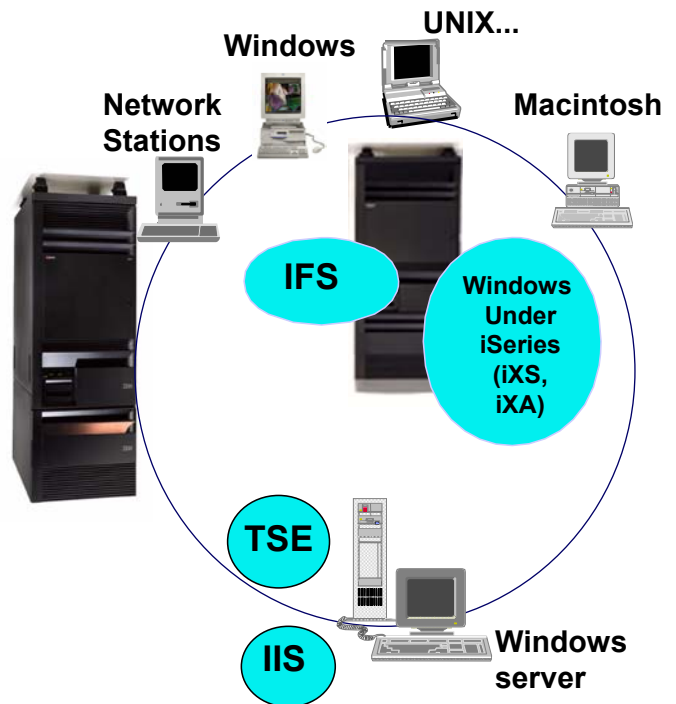
Microsoft Transaction Services (MTS)

- **example, an Auction House application where may need to back out transactions (ie, 2-phase commit)**

Terminal Server Edition (TSE)

- **iSeries Access runs on a Windows server, and enables multiple simultaneous users (such as Network Stations, DOS, Unix, or Macintosh) work with iSeries resources**

Internet Information Services (IIS)

- **Provides a Web application infrastructure for Windows Servers. iSeries Access runs on server, and fulfills requests for iSeries data (ie, ODBC, OLE DB, etc)**

UNIX...

Windows

Network Stations

Macintosh

IFS

Windows Under iSeries (iXS, iXA)

TSE

IIS

Windows server

iSeries Access for Windows - Middleware

Middleware	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) • Visual Basic Wizards	• 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 • Can use VB 6.0	• Access to DB2 UDB for iSeries • Can use OS/400 Data queues, Remote Commands, Stored Procedures, Distributed Program Calls... • VB Wizards can be used with iSeries OLE DB provider
• .NET Data provider called IBM.Data.DB2.iSeries	• Microsoft .NET Framework is a platform for building, deploying, and running Web Services and applications	• Enables applications using Microsoft's .NET framework to access DB2 UDB for iSeries databases
• Data Queues • Remote Commands • Stored Procedures • Distributed Program Calls • SQL APIs • Data Transfer APIs	• Active X Automation Controls & Objects • iSeries programming interfaces	• Works with OS/400 Data queues, Remote Commands, Stored Procedures, Distributed Program Calls... • Access to DB2 UDB for iSeries
• PC5250 enablers	• Includes ActiveX controls • Industry-standard EHLLAPI, WinHLLAPI, DDE for code conversion.	• For 5250 applications • ENPTUI for enhanced 5250 datastream functions

iSeries ODBC Driver

ODBC

Most popular database access method from a Windows application

Runs on 32-bit and 64-bit Windows O/S

Compliant with Microsoft ODBC Version 3 specification

- **PC applications can now take advantage of new functions included in the 3.5 Specification.**

ODBC Enhancements – V5R4, V5R3, V5R2

V5R4 Enhancements	V5R3 Enhancements	V5R2 Enhancements
Requires i5/OS V5R4 • **128-byte column names** • **Maximum SQL statement lengths of 2,097,152 bytes or 1,048,576 characters** • **Support for IBM Enterprise Workload Manager (eWLM) correlator** • **Support for lock sharing between loosely coupled transactions** **OS/400 V5R2 or later** • **Improved support for delimited names**	• **Support for BINARY / VARBINARY data types** • **Support for UTF-8 / UTF-16 data** • **Support for increased precision of decimal numbers** • **Enhanced MTS support** • **ANSI / ISO (American National Standards Institute / International Standards Organization) Core Level SQL standard of 1999**	• **64K SQL Statements** • **Additional descriptor information** • **MTS Support (actually shipped in V5R1)**

iSeries OLE DB Provider

OLE DB

Microsoft-recommended Access for 32-bit Windows applications
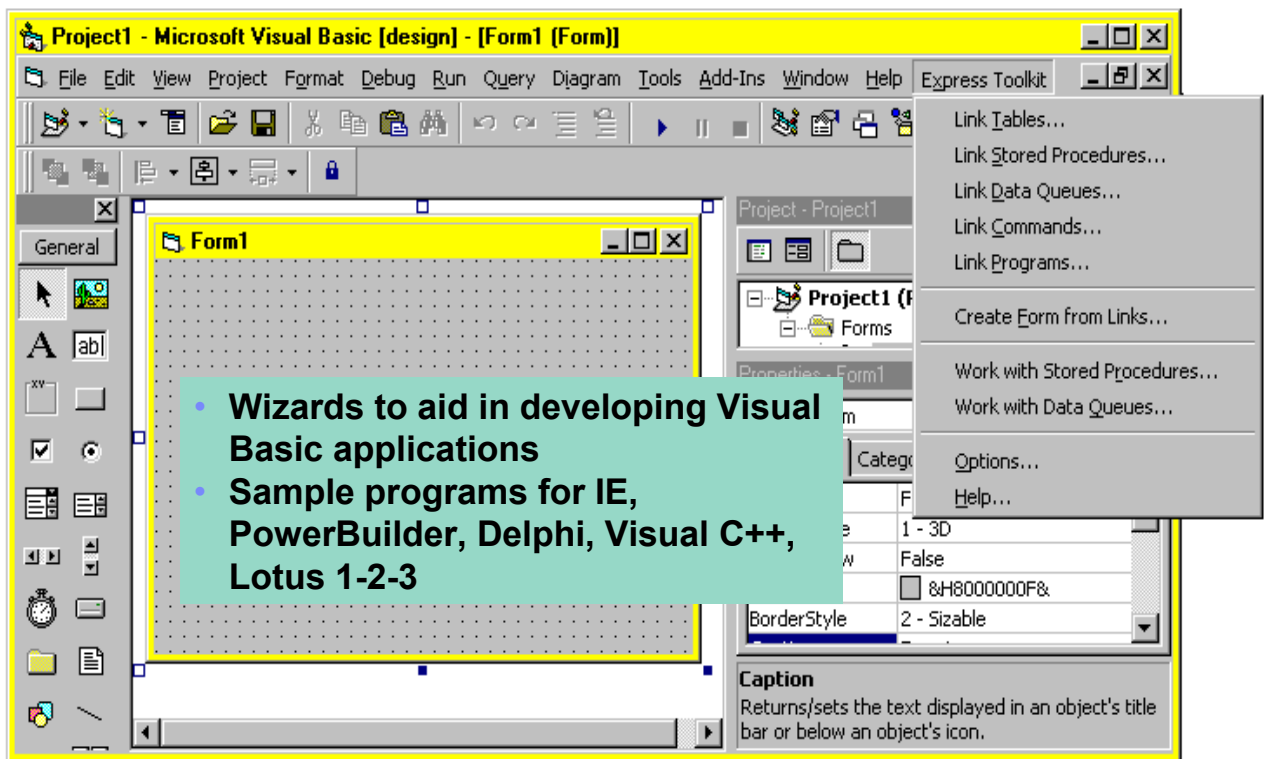
Runs on 32-bit and 64-bit Windows O/S

- **Record level access**
- **Data Queues**
- **Stored Procedures**
- **SQL**
- **Remote Commands**
- **ODBC**

👉 **plus add-ins for Visual Basic**

OLE DB Provider supports OLE DB 2.5

Visual Basic Programming Aides

- **Wizards to aid in developing Visual Basic applications**
- **Sample programs for IE, PowerBuilder, Delphi, Visual C++, Lotus 1-2-3**

OLE DB Enhancements – V5R4, V5R3, V5R2

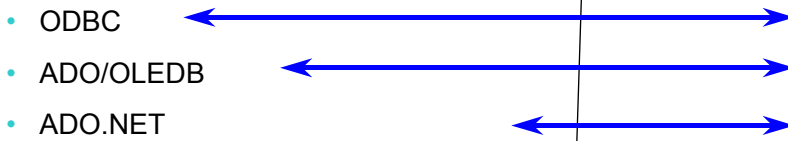| V5R4 Enhancements	V5R3 Enhancements	V5R2 Enhancements

Requires i5/OS V5R4
• **128 byte column names**
• **Maximum SQL statement lengths of 2,097,152 bytes or 1,048,576 characters**
• **Support for IBM Enterprise Workload Manager (eWLM) correlator**
 	
OS/400 V5R2 or later
• **System naming and library list**
• **Improved support for delimited names**
	▪ **New SQL-only provider (IBMDASQL)**
	  – **SQL commitment control using IBMDASQL**
	  – **MTS support using IBMDASQL**
	▪ **SQL**
	  – **Custom blocking in SQL**
	  – **SQL data compression**
	  – **SQL package support**
	▪ **New Record-Level Access-only provider (IBMDARLA)**
	  – **Record-level access support for forward-only cursors and blocked reads using IBMDARLA**
	▪ **Supports updatable cursors for the SQL dialect**
	▪ **Database BINARY and VARBINARY data types**
	▪ **Database larger decimal precision support**
	▪ **Unicode support**
	  – **UTF-8 & UTF-16 support**
		▪ **Custom properties added**
		  • **Force Translate (translate CCSID 65535 data)**
		  • **Default Collection**
		  • **Catalog Library List**
		  • **Convert Date Time To Char**
		▪ **Supports updatable cursors for the SQL dialect**
		▪ **Supports ROW-ID**
		▪ **64K SQL Statements**
		▪ **Additional descriptor information**
		▪ **Is thread safe**
		▪ **OLE DB provider work with Windows products, such as:**
		  – **Visual Basic 6.0 OLE DB controls and wizards**
		  – **ADO 2.5 – ships with Microsoft Windows 2000**
		  – **ADO 2.1 - ships with Microsoft IE 5.0 and Office/2000 products**
		  – **An OLE DB interface is provided to support ADO recordset Seek (ADO 2.x)**

iSeries .NET Provider

.NET

The next big wave in Microsoft technology

Runs on 32-bit and 64-bit Windows O/S

Microsoft's Technology Roadmap

Today

- ODBC
- ADO/OLEDB
- ADO.NET

.NET Enhancements – V5R4, V5R3

V5R4 Enhancements	V5R3 Enhancements
• **System naming and library list** • **Support for LOB data types** • **Support for multiple active result sets per connection** • **Customizable String processing for Char for Bit Data, Date, Time, Timestamp, Decimal, and Numeric data types** • **Support for IntelliSense** • **Additional sample programs** • **Improved support for delimited names** **Requires i5/OS V5R4** • **128 byte column names** • **Maximum SQL statement lengths of 2,097,152 bytes or 1,048,576 characters** • **Support for IBM Enterprise Workload Manager (eWLM) correlator**	• **SQL (INSERT,UPDATE, DELETE)** • **Commitment Control** • **Connection Pooling** • **SQL naming** • **Unicode** • **Tracing** • **Threads** • **IASPs (multiple databases)** • **Stored Procedure Support** • **iSeries-specific Properties** • **User-Defined Types** **Supported later via SP SI15176** • **System Naming (/)** • **Library List** • **Large Objects (LOBs)**

The .NET provider is named IBM.Data.DB2.iSeries. It allows applications using Microsoft's .NET framework to access DB2 UDB for iSeries databases. For complete documentation of the .NET Data Provider, see IBM DB2 UDB for iSeries .NET Provider Technical Reference.
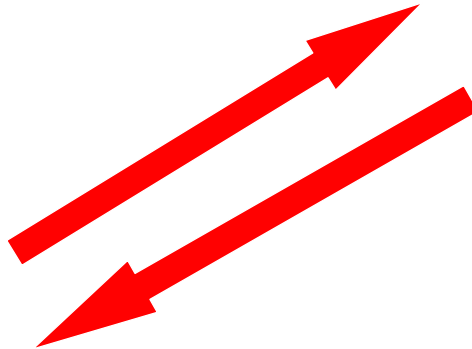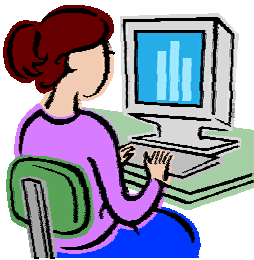
New Redbook on .NET Data Provider

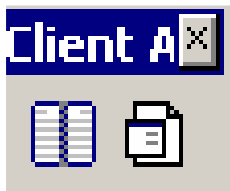*www.ibm.com/eserver/iseries/access/windows*
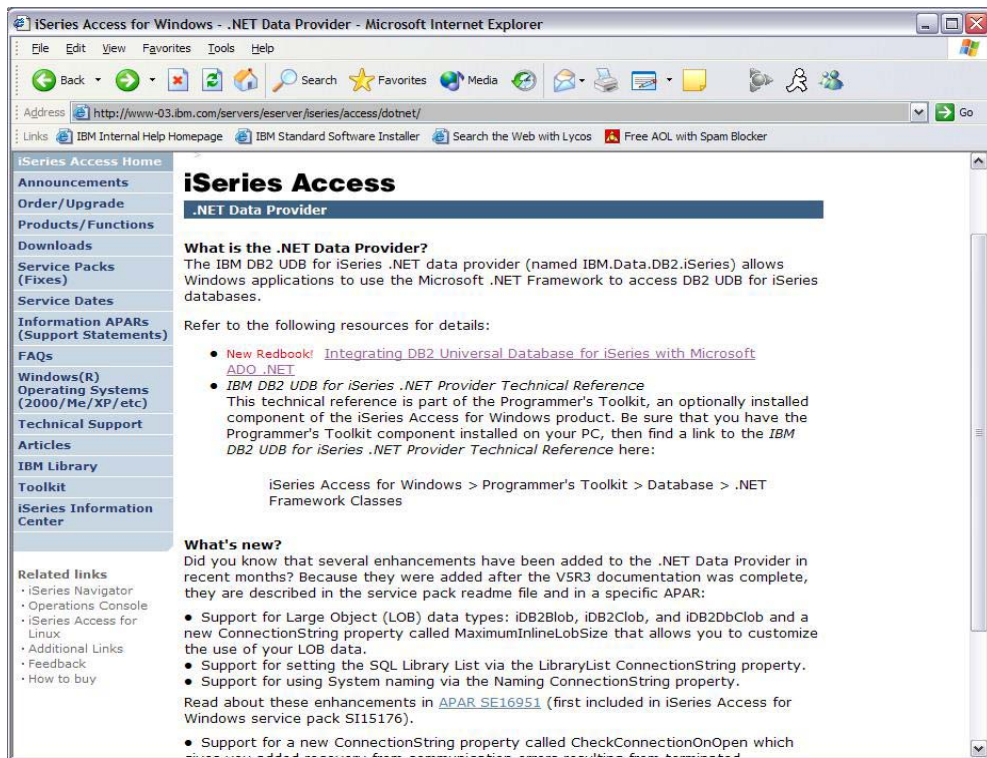
Data Transfer

- **Copy Data to i5/iSeries database**
- **Copy Data from i5/iSeries database**

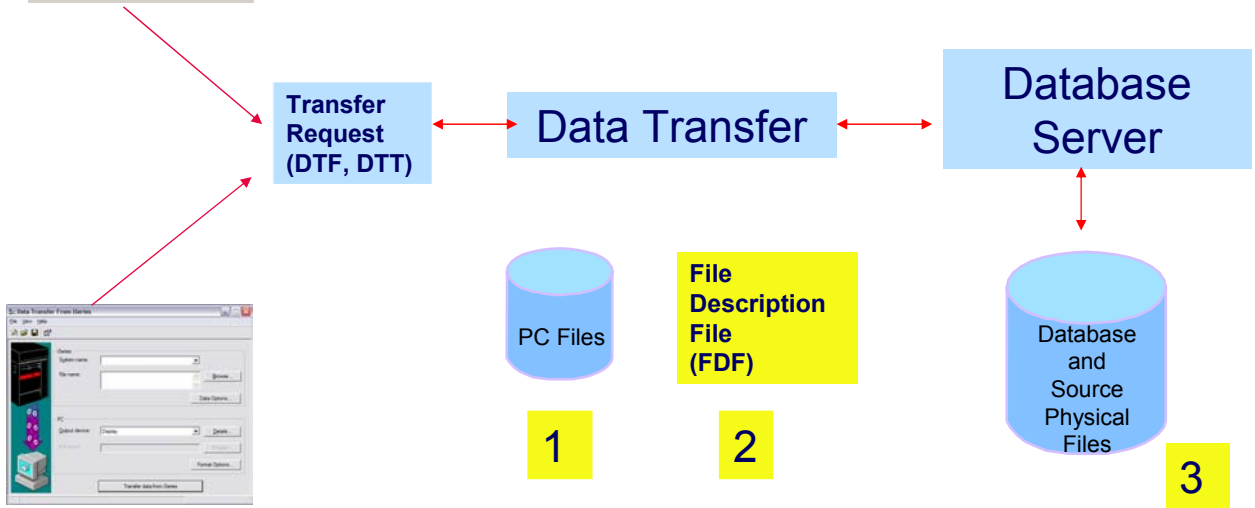# Data Transfer Structure

iSeries Access for Windows

Client A

**Data Transfer uses an FDF file to keep information about the Data File Format**

Transfer Request (DTF, DTT) ←→ Data Transfer ←→ Database Server

PC Files

File Description File (FDF)

Database and Source Physical Files

1   **2**   **3**

Create iSeries Database File - Wizard
iSeries Access for Windows

You start the 'Create iSeries Database File' wizard by selecting it from the Tools menu or by clicking on its icon in the toolbar

- **Plan ahead by increasing lengths if necessary.**

- **Do not include character and numeric data in the same column.**
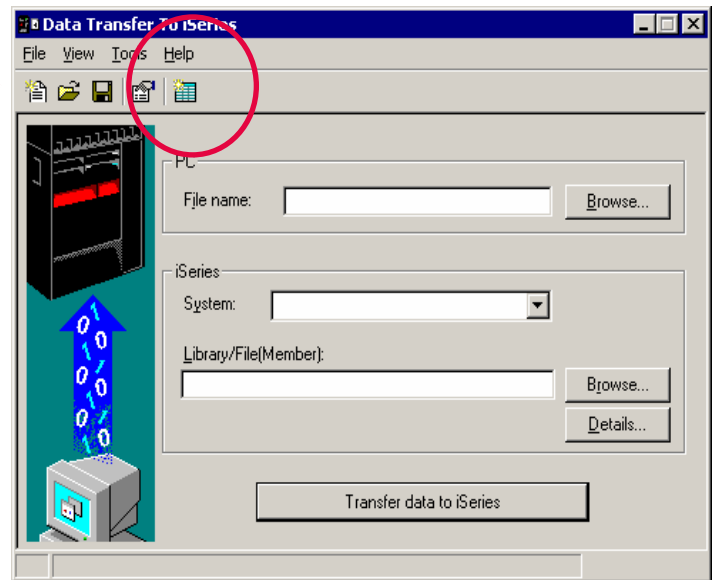
Create iSeries Database File Wizard
iSeries Access for Windows

The wizard creates:

• **A File Description File (FDF)**
• **A Database file on the server**

The wizard does not do the actual data transfer to the iSeries

Create iSeries Database File

Welcome

This wizard allows you to create an iSeries database file from an existing PC file.

You will be required to specify the name of the PC file from which the iSeries file will be based, the name of the iSeries file which to create, and several other necessary details.

< Back   Next >   Cancel   Help
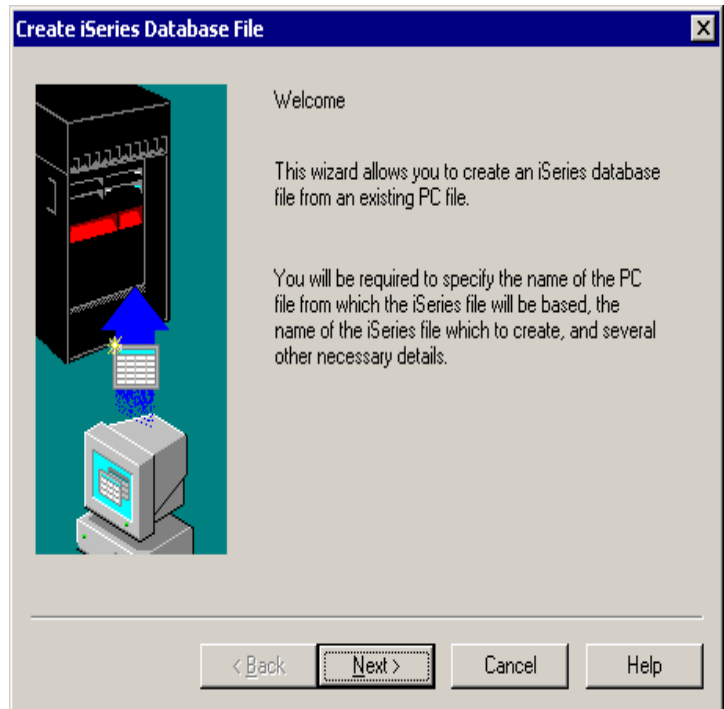
Create Data Transfer Upload Using GUI

The PC file name

The iSeries System where the file was created

The Library/File name of our new file

Click to transfer data to your new file

Data Transfer To iSeries

File View Tools Help

PC
File name: `C:\temp\dtransfer\customer.123`   Browse...

iSeries
System: `MYSYSTEM`

Library/File(Member):
`INFO/CUSTOMER`   Browse...   Details...

Transfer data to iSeries
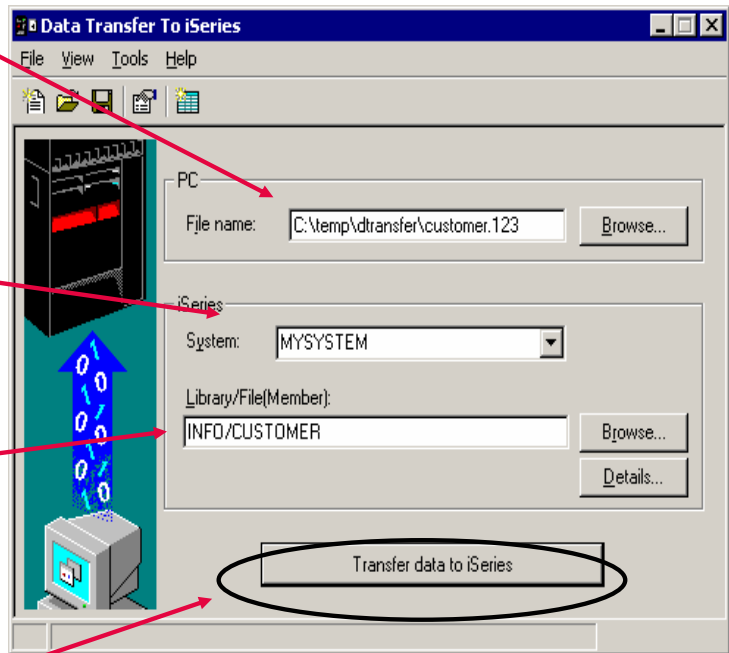
Transfer Data to iSeries

Step through the wizard's GUI panels and:

- **Set up the library list**
- **Select the PC file that contains your data**
- **Select the PC file type**
- **Select the File Description File (FDF)**
- **Change Data Format Options (best to skip this panel)**
- **Scan PC File**
- **View results of the Scan PC File function**
- **View Field Details panel**
- **Select the iSeries System Name**

Creating a Basic Data Transfer

Uploading a file to iSeries

Data Transfer from iSeries

GUI for building SQL Queries
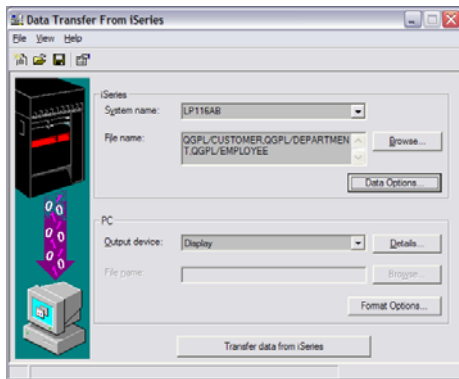
➢ **Click the Data Options button to start the Data Transfer Query Builder.**
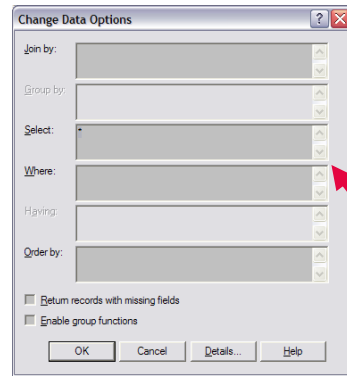
The Native SQL interface allows you to type in a free form SELECT statement.

➢ **A list of files and columns in those files are provided to help you build your statement**
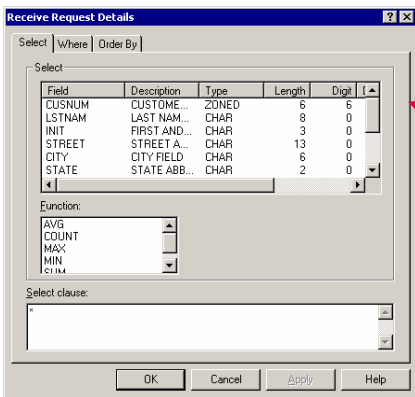
The Query Builder
➢ **Lets you generate SQL queries without knowing SQL**
➢ **Can do Joins, Groups, and Conditional Grouping**
➢ **Builds SELECT statements**

Microsoft Excel Add-in Support

Add-ins are provided for both 'Downloading' and Uploading' data to/form Microsoft Excel spreadsheets and the iSeries database

Works with:

➢ **Microsoft Excel 97**

➢ **Excel 2000**

➢ **Excel XP**

Use these add-ins by clicking on the Data Transfer upload or download buttons on the Excel toolbar

Viewing the results in Excel

V5R3 Data Transfer Upload

Question

I've just installed iSeries Access for Windows V5R3 and found that when transferring data to the iSeries, the default type of Text columns in an Excel file is displayed as UNICODE (GRAPHIC) instead of CHARACTER.
Some applications on the iSeries cannot handle GRAPHIC data, so users have to manually change the field types on the PC prior to the transfer beginning.
This can be rather labor intensive for spreadsheets with mulitple columns. Is there anyway we could set up these defaults?

Response

A fix (APAR SE19885) for this was added to the V5R3 Service Pack SI18651.

There is now a way to get the defaults as CHAR instead of as GRAPHIC (Unicode).

Batch Transfer Command Interface

iSeries Access for Windows

RTOPCB

- **Does batch data transfers from iSeries to PC**

RFROMPCB

- **Does batch data transfers from PC to iSeries**

RXFERPCB

- **Does batch data transfers from iSeries to PC**
- **Does batch data transfers from PC to iSeries**

RTOPCB Example

Data Transfer from iSeries: Batch transfer command interface

RTOPCB [/S] [[/I] [filename [/C] [...]] | [[I] /F list file]]

/S	Show transfer statistics.
filename	An iSeries to PC transfer request (.TTO or .DTF), Rumba (.RTO), or Windows 3.1 (.DT) file transfer request.
/C	Process next file independent of previous file.
/I	Ignore warnings.
/F	Process files within list file (one filename per line).
list file	A file containing a list of transfer files to process.

Examples:
 RTOPCB c:\temp\test.tto
 RTOPCB /S c:\temp\test.tto /C c:\temp\trans.dtf
 RTOPCB /S /F c:\temp\transfer.dtf

RFROMPCB Example

Data Transfer to iSeries: Batch transfer command interface

RFROMPCB [/S] [[/I] [filename [/C] [...]] | [/I] [/F list file]]

/S	Show transfer statistics.
filename	A PC to iSeries file transfer request (.TFR or .DTT), Rumba (.RTO), or Windows 3.1 (.DT) file transfer request.
/C	Process next file independent of previous file.
/F	Process files within list file (one filename per line).
list file	A file containing a list of transfer files to process.

Examples:
 RFROMPCB c:\temp\test.tfr
 RFROMPCB /S c:\temp\test.tfr /C c:\temp\trans.dtt
 RFROMPCB /S /F c:\temp\transfer.dtt

RXFERPCB Example

Data Transfer between iSeries: Batch transfer command interface

RXFERPCB request userID password

request - Fully qualified file name of any Client Access upload or download request of type .DTF, .DTT, .TTO, or .TFR.

userID - A valid iSeries user profile for the system specified in the request.

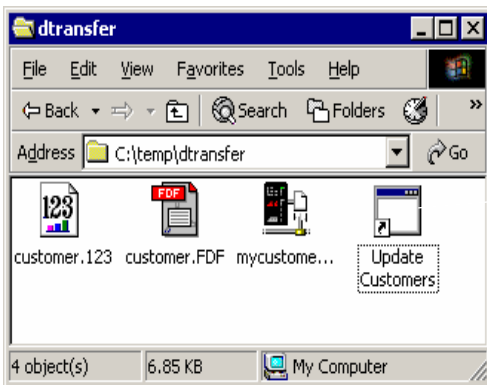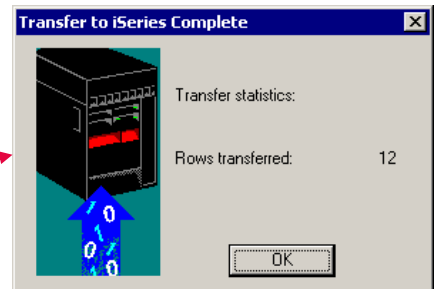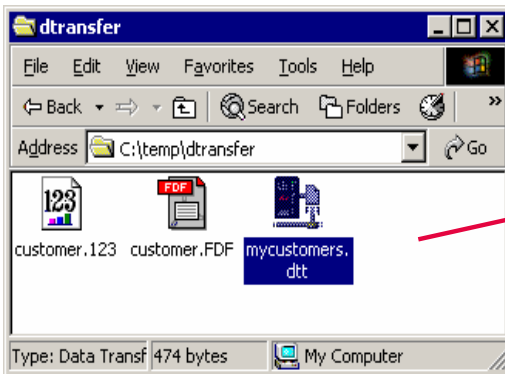password - A valid password for the specified user profile.

Examples:
  RXFERPCB c:\temp\upload.dtf myuserid mypassword
  RXFERPCB c:\temp\download.dtt myuserid mypassword

Run Data Transfer by Clicking an Icon

Double-click on an icon

Data can be uploaded with no prompt to user

Auto-run/auto-close support

Use the Properties panel to set up Auto-Run and Auto-Close.
You get to it by getting into the Data Transfer program, then selecting File -> Properties

The options:
Allow transfer requests to run automatically when opened
**Allow transfer requests to close after the transfer has completed**
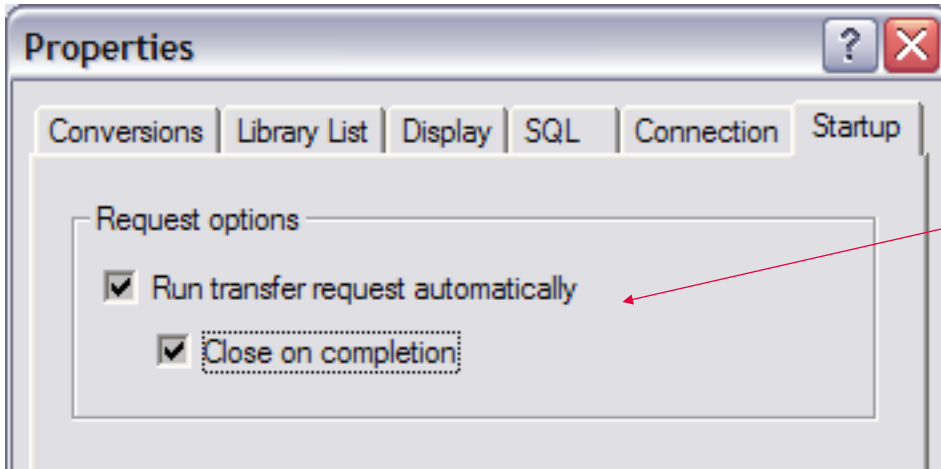
If you select both options, then it will run without user intervention

Scheduling a Data Transfer Request

➤ **Use Access for Windows Batch Commands to create the appropriate Data Transfer request**

➤ **Using Microsoft Windows Scheduler, you could schedule iSeries Access for Windows Batch Transfers to run without user intervention**

RTOPCB can now be scheduled to run at a given date and time
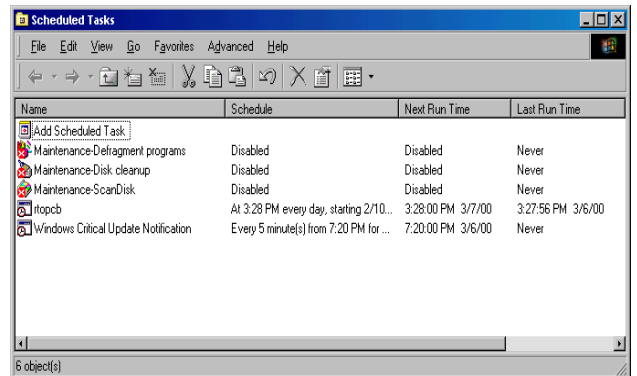
Data Transfer ActiveX Automation Objects

ActiveX? Automation Objects?

What are Active X Automation Objects?

➢ ActiveX Automations are re-usable objects that reside on your Windows PC.

➢ Many times they can be used to run an application by "remote" with a program or script.

➢ They work similarly to Object Linking and Embedding (OLE), used for things like inserting an Excel spreadsheet into a WordPad document. Not just cutting and paste, actually "linking" the spreadsheet into the document.

➢ ActiveX objects work much like this, except in the programming world.

What can they do for me?

➢ ActiveX automations can be used to quickly and easily perform many tasks with little or no user intervention.

➢ For example, a program may use the Automations for Microsoft Excel to perform various data calculations without ever bringing up the Excel interface.

➢ ActiveX automations can be used to create new custom interfaces over applications that have ActiveX automations.

➢ A few examples are Microsoft Office products, Internet Explorer, the PC5250 emulator, and various iSeries Access for Windows functions.

Data Transfer ActiveX Automation Objects

ActiveX automations are supported by many programming languages including:

- ➤ **Visual Basic**
- ➤ **Visual Basic for Applications (used by Microsoft Office)**
- ➤ **Visual Basic Script (used in web pages and the PC5250 emulator)**
- ➤ **C++**
- ➤ **Java**
- ➤ **Lotus Script**
- ➤ **Many other applications and development environments**

You must write program code to use these objects. Or allow some development tool to write the code for you.

You can find information on the iSeries Access for Windows ActiveX automation objects in the iSeries Access for Windows Toolkit under the ActiveX section of the Database portion of the Toolkit documentation.

Data Transfer Enhancements – V5R4, V5R3, V5R2

| V5R4 Enhancements	V5R3 Enhancements	V5R2 Enhancements
• Support MS Excel XML Spreadsheet format • Support 128-byte column names • Support PC selection of an independent auxiliary storage pool (IASP) • Support creating and overwriting empty query result sets • Improved support for delimited names (requires V5R4 SP1)	• Unicode enablement / New Unicode text file type – Support UTF-8 and UTF-16 data in DB2 database tables • Support larger decimal precision • Support BINARY and VARBINARY SQL data types • Support most recently used request list and last directory in Excel Add-in • Date/Time fields recognized by Data Transfer and now stored on DB2 for iSeries as 'date or time' field. • Option to convert numeric to character when transferring to iSeries DB • Support data compression for faster transfers	• Support for uploading more than 256 columns of data to a database file • Add-ins for Excel to upload data directly from spreadsheet • Support Excel V7 (BIFF7) and V8 (BIFF8) file formats. (Excel 97 and 2000 use V8 file formats) • Support Lotus 123 V9 file format (with 65,536 rows) • Support numeric cells within formula (Excel, Lotus 123) • Support new iSeries database functions

Example of Unicode Enablement – UTF8 and UTF16

UTF8	UCS2	UTF16
ABC	ABC	ABC
εΦΩ	εΦΩ	εΦΩ
Для	Для	Для
גבא	גבא	גבא
طسذ	طسذ	طسذ

DXFERUNI/MIXUTYPE

Retrieved record 7

Incoming Remote Command (IRC)

- **RUNRMTCMD is used to run a PC command from the OS/400 command line in a 5250 session**

- **Since it is a CL command, RUNRMTCMD may also be run from a CL program running on a server**

1

2
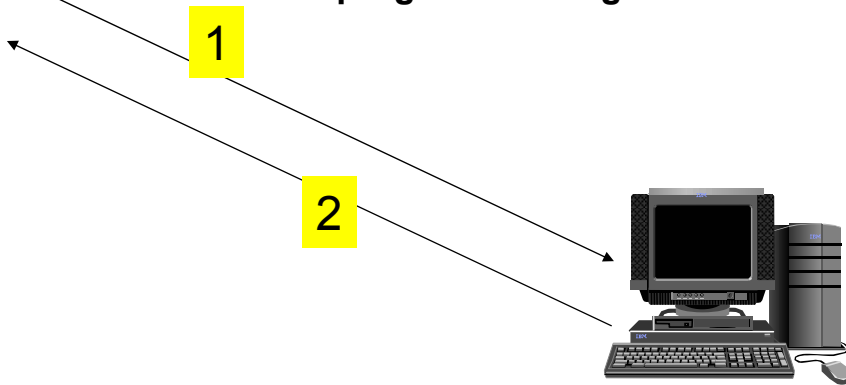
- **CWBRXD is the name of the program that provides and controls the Incoming Remote Command (IRC) function**
  - **RXD in the name stands for Remote eXecution Daemon**
  - **The terms CWBRXD and IRC are used interchangeably**

V5R4	V5R3
The remote program interfaces (CWBRC.H) that run on the PC have been changed to allow a more complete list of job messages to be returned.	A new option: /loadprof Allows commands to have access to the user-specific registry and environment variable settings while they are running • Some commands require setting this option in order to work properly • This option can be saved on the Incoming Remote Command tab of iSeries Access for Windows Properties, where it is called Load user profile when command run in user contex For further information regarding this new option, refer to the CWBRXD and Incoming Remote Command topic in the User's Guide (use this path: Start > Programs > IBM iSeries Access for Windows > User's Guide

- The Incoming Remote Command function runs a command on the Windows PC and then routes any text output that is generated by the command back to the requesting system.
- Commands are sent to the Windows PC in the format of commands that are typed on a Windows command prompt
- The output that would normally appear in that command prompt is sent back to the requesting system
- If the command produces no output, a no output message is sent instead.
- When a command is sent from a remote system, a message is logged in the iSeries Access for Windows history log. The message information that is logged identifies the system and user ID that sent the remote command, the text of the command that was sent, and whether or not the command could run. If no user ID is specified with the command, no user ID is logged.

iSeries Access - Programmer's Toolkit

- **Installable option of Access for Windows**
- **Included in the icon group for Access for Windows**
- **Contains sample programs, and documentation**
- **Also contains links to header files and Windows Help files installed on your PC**
- **Has Internet links to more sample programs, documentation, and other helpful information**
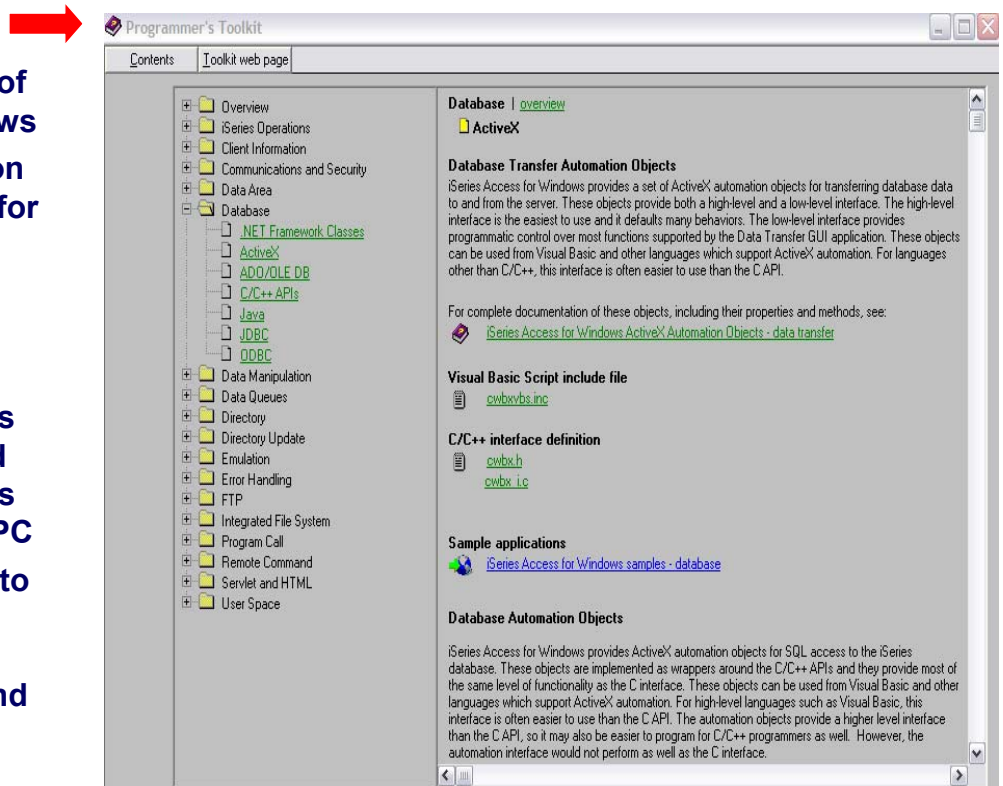
iSeries Access for Linux

- **First available in Aug 2003**

- **Latest release available Aug 2005**

Download it from: www.ibm.com/eserver/iseries/access/linux

© 2006 IBM Corporation

What is iSeries Access for Linux

iSeries Access for Linux includes the following features:

- **Full function 5250 emulator**
  - **This function enables end users to work with OS/400 system screens and run host applications**
- **ODBC driver**
  - **This function enables your Linux PC applications to access information in DB2 UDB for iSeries**
  - **ODBC Driver is functionally equivalent to ODBC Driver in iSeries Access for Windows**
- **iSeries Access APIs**
  - **RmtCmd, NLS, System Object…**

Designed to run natively on Linux operating systems

Supported for use on the following:

- **Linux operating systems with Intel processors and on Power PCs**
- **iSeries server logical partition (LPAR)**

Two different versions available

32-bit Linux operating systems

- **Available August 2, 2005: Version 1.10**
- **The 32-bit version provides an ODBC driver for accessing the DB2 Universal Database® (UDB) for iSeries and a 5250 emulator.**
- **Version 1.10 includes new support for Kerberos and Single Sign-On (SSO), bypass sign-on, and an example SSL configuration.**

64-bit Linux operating systems

- **Available February 21, 2005: Version 1.2**
- **The 64-bit version provides an Extended Dynamic Remote SQL (EDRS) driver for Power PC.**
- **It is supported only on SuSE SLES 9 and requires the iSeries Access for Linux 32-bit product to be installed first.**
- **For more information on ERDS, refer to the XDA Web Site and iSeries Infocenter, "Extended Dynamic Remote SQL (EDRS) APIs" in the Programming -> APIs -> Database and File -> Database section.**

Redbook 'Linux on i5 Implementation' – available June/2005

This IBM Redbook helps companies plan, configure, and install Linux on i5

- **It discusses the migration issues of Linux from previous iSeries systems to i5.**
- **It covers various helpful topics of administrations, operations, and tips and techniques.**
- **It also covers iSeries Access for Linux (topics ODBC driver and 5250 emulation features, and iSeries Access for Web Download function).**

Table of Contents

New guide for shops looking to plan, configure, and install Linux on i5.

To obtain this Redbook, visit
http://www.redbooks.ibm.com/abstracts/sg246388.html.

iSeries Access for Web – V5R4

New look in V5R4

Functions you can perform with iSeries Access for Web 5722-XH2, V5R4

Print
- Printer output
- PDF Printer output
- Printers
- PDF Printers
- Internet Printers
- Internet Printer Shares
- Printer shares
- Output Queues

5250
- Active Sessions
- Start 5250 Session
- Configured Sessions
- **Bypass Sign-on**

Files
- Browse Files
- File Shares

Items marked in red are new in the V5R4 version

Messages
- Display Messages
- Send Messages
- Sametime
- Operator Messages
- Message Queue

Database
- Tables
- My Request
- Run SQL
  - **Open Office Formats**
- Copy Data to Table
- Import Requests
  - iSeries Access for Windows
  - **Query Manager**
  - **Query/400**
- Extract Server Data

Commands
- Run commands
- My commands
- Search

My Personal Folder

Jobs
- User Jobs
- Server Jobs

Customize
- Preferences
- Policies
- Settings

Download

Other
- Bookmarks
- Change Password
- Connection Pool
- Status
- Trace

Database Overview

iSeries Access for Web

iSeries Access for Web uses the IBM Toolbox for Java JDBC Driver for Database Connectivity

Web Browser
Access to iSeries

iSeries
Web Server

Websphere

iSeries
Access
for Web

JDBC Driver

JDBC Driver

DB2
UDB

DB2
UDB
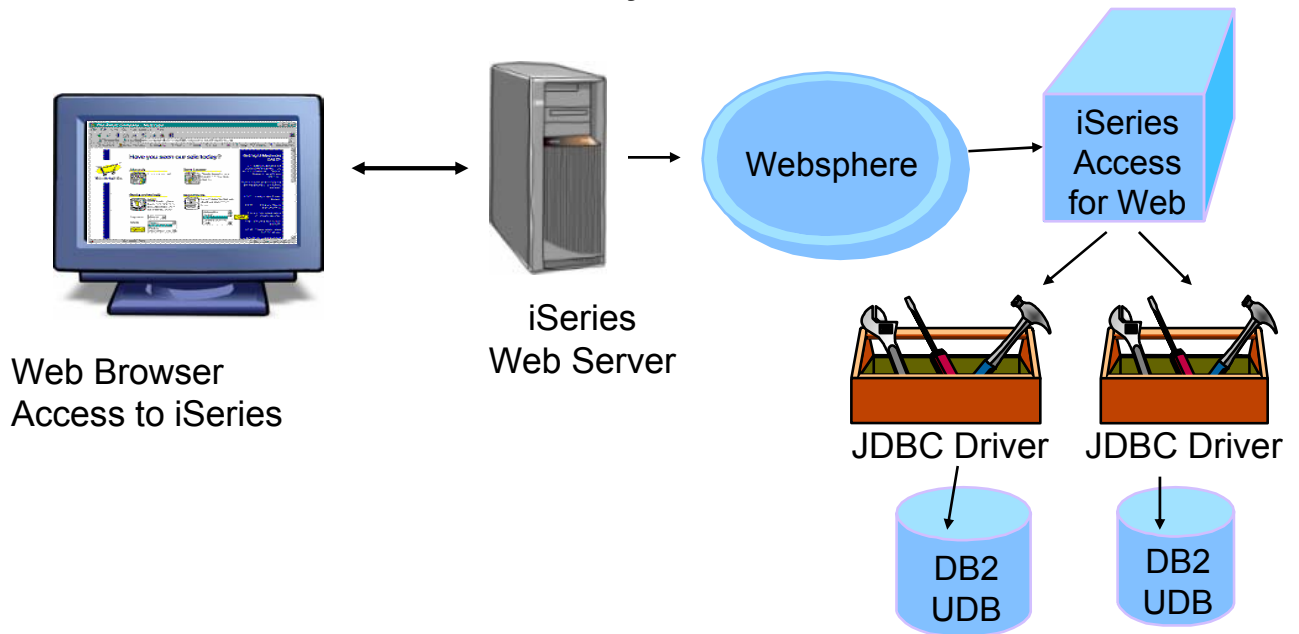
iSeries Access for Web – Database Functions

Access database tables on your iSeries server with iSeries Access for Web.

Tables

- View a list of database tables on your iSeries server.
- Perform actions on these tables without having knowledge of SQL and its syntax.
- View the contents of a table in a paged list, using the Quick view action.
- Add and update records in a table using the Insert and Update actions.
- Create your own customized SQL request for a table using the Run SQL action.
- Create your own customized copy data request for a table using the Copy data to table action.

My requests

- View a list of previously saved requests.
- Run or Edit requests from this list.
- Manage lists using the Copy, Delete, and Rename actions
- Create and manage shortcuts to requests

Run SQL

- Run SQL statements dynamically.
- View output as a paged list or in a popular file format, like Microsoft Excel or Lotus 1-2-3. (Output format depends on how you have your browser configured and whether the browser can locate a plug-in for the output type you choose.)
- Customize how data is returned by setting options specific to the output type.
- Build SELECT statements using an SQL Wizard.
- Save requests for repeated use.

Copy data to table

- Copy existing data files from your PC to a database table on your iSeries server.
- These data files can be in many popular file formats, including Microsoft Excel and Lotus 1-2-3.
- Replace the contents of a table or add data to an existing table.
- Create a new database table based on the contents of a workstation file.
- Save requests for repeated use.

Import request

- Import Client Access Data Transfer upload and download requests into iSeries Access for Web copy data and SQL requests.
- Imported requests are automatically converted to iSeries Access for Web format.
- Run and edit converted requests on your iSeries server just like other copy data and SQL requests.

Import query

- Import queries generated by Query for iSeries and DB2 UDB for iSeries Query Manager.
- Imported queries can be saved into iSeries Access for Web database requests.
- Run and edit converted queries on your iSeries server just like iSeries Access for Web SQL requests.

Extract server data

- Extract server object information into a database table.

My Requests

What you might allow your typical end users to do

Administrator creates queries or upload requests for end users to run.

- **Selected Users are then given access to run these selected data requests**
- **They're only given access to run those necessary to perform their job**

These are called Shortcuts

Static Requests

Run a pre-built query or upload

- **Example is a Query, and is set up to display up to 500 entries**

This query could be set up to:

- **Be viewed in the browser**
- **Converted to a spreadsheet format, HTML, plain text….**
- **Converted to .PDF**
- **Saved in IFS or Personal Folder**

Dynamic Query

Example has 2 conditions the end user can set:

1. **Type of boat (Power, Sailing, etc)**
2. **Price limits (lower / upper)**

Query brings back only database entries meeting conditions

How to work with the database features

Shortcuts

*SECADM special authority or an iSeries Access for Web user given administrator privileges by *SECADM can work with "Policies".

Decide who can:

- **Create and modify requests**
- **Run only previously defined shortcuts**
- **Who gets access to shortcuts**

If the Predefined Request changes, the Shortcut is automatically changed for users too

Policies work on i5/OS User Profiles – Users and Groups

Shortcuts – working with, managing

Under "Action" column, you can:

- **Create shortcuts**
- **Edit your shortcuts**

At bottom of screen, you can:

- **Delete shortcuts to existing users or groups**

Copying Data to the iSeries

Copy data to table function allows you to copy workstation file data into a DB2 table

Specify:

- **File name**
- **File type**
- **File settings**
- **Table name**
- **Replace or append records to table**
- **Connection**
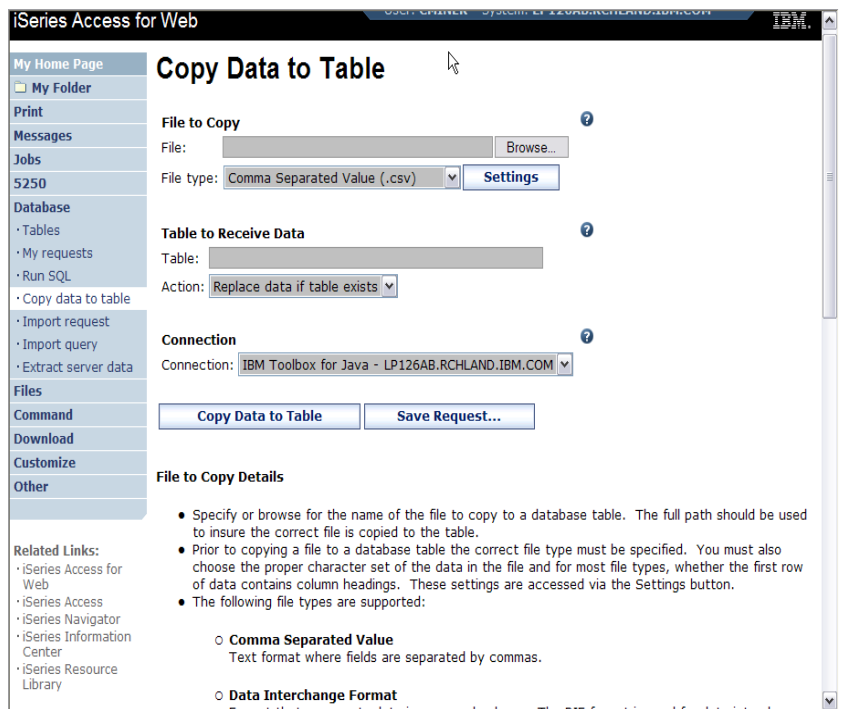
When using 'Database' functions

You can connect to other multiple difference systems and databases with iSeries Access for Web

- **Simply add other database connections to your list**

    - **Easiest way to do this is to copy the default one, then modify it and save it.**
    - **It will then appear as an option in the Connection pulldown**

- **The default IBM Toolbox for Java is for DB2 UDB for iSeries, but you could use other driver managers to connect to other systems**
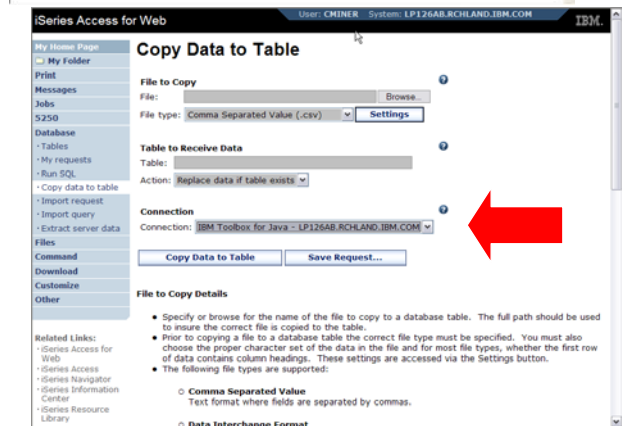
Database – share data source names new in V5R4

Servlet version

Two types of connection definitions are supported:

- **Driver manager connections Driver manager connections require a driver class and a JDBC URL**

  - **Specify the JDBC driver class name to use for this database connection, ie, the IBM Toolbox for Java JDBC Driver**

- **Data source connections require a data source name.**

  - **Specify the JNDI name of the data source to use for this connection.**
  - **Only supported in the WebSphere application server environment.**
  - **Must have a component-managed authentication alias set if it is used in a single sign-on environment.**
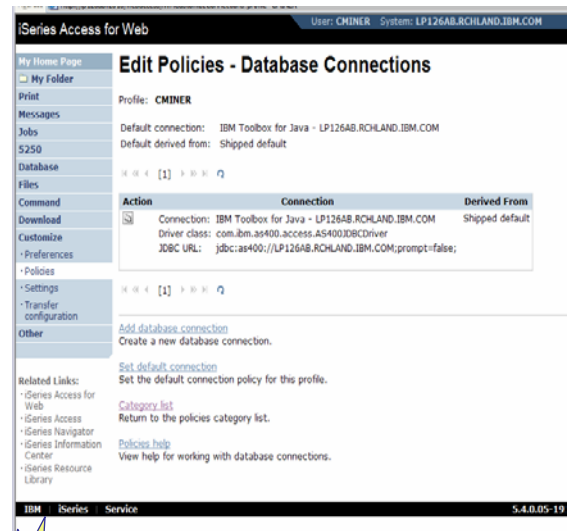
Data Source connections enable many different applications running under WebSphere to use the same data source connections

Creating a new table

Copy data to table will create a new table if one does not exist

- **Choose to view or change the table definition**

  or

- **To simply create the table using the default definition determined by iSeries Access for Web**

---

iSeries Access for Web   User: **CMINER**   System: **LP126AB.RCHLAND.IBM.COM**   IBM.

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Related Links:
· iSeries Access for Web
· iSeries Access
· iSeries Navigator
· iSeries Information Center
· iSeries Resource Library

Copy Data to Table

Table BOATS.DATA does not exist.

Create options
◉ View or change column definitions before creating table
○ Create table using the source file's column definitions

[OK]   [Cancel]

Create Options Details

- **View or change column definitions before creating table**
  - This is the recommended option. You can verify or make modifications to the table's column definitions before creating the table.
  - If the file to copy does not contain column headings, the default column headings (F1, F2, F3, ... Fn, where n is the number of columns in the file to copy) can be changed to something more descriptive.
  - You can choose more appropriate data types for fields. For example, using VARCHAR instead of CHAR or FLOAT instead of NUMERIC.
  - CHAR and NUMERIC columns can also be lengthened to support larger data.

- **Create table using the source file's column definitions**
  - A default table is created and the file data is copied into it.
  - If the file does not contain column headings, default column headings (F1, F2, F3, ... Fn, where n is the number of columns in the file to copy) are used.
  - The table is created with minimum column lengths to contain the file data.
  - Default data types are used for table columns.

Creating a new table

Verify Column Definitions for A New Table

- **From this panel you may add a description, change data types, column length, and scale**

- **Click Create Table to create the new table and copy your data to the new table**

Tables – work with iSeries database information

- **Insert**
- **Update**
- **Quick View**
- **Find**
- **Run SQL**
- **Copy Data To Table**

Working with Tables

Connection & Table Filter

Table Actions

Database preferences

iSeries Access for Web

AB.RCHLAND.IBM.COM

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Related Links:
· iSeries Access for Web
· iSeries Access
· iSeries Navigator
· iSeries Information Center
· iSeries Resource Library

Tables

Connection: IBM Toolbox for Java - LP126AB.RCHLAND.IBM.COM
Table filter: *USRLIBL, boats

[1] 2 3 4 5 6 7 8 9

Table	Description	Action
BOATS.BOATS	Available BOATS	
BOATS.BOATS1	Available boats by length	
BOATS.PCFILES	PC files needed by BOATS WSG Demo	
BOATS.QCLSRC		
BOATS.QCMDSRC		
BOATS.QDDSSRC		
BOATS.QRNCVTLG		
BOATS.QRPGLESRC		
BOATS.QRPGSRC		
QGPL.#	$	
QGPL.BITYPES		
QGPL.CHADDEC		
QGPL.CONCURTYPE		
QGPL.CPY_INFO		
QGPL.DAVE		
QGPL. CSEP		
QG VZERO		
IV/ZERO2		
	tput file for DSPSFWRSC	

Table Filter

Used to control the tables displayed in the Tables list

Comma-separated list of

- **schemas**
- **schema filters**
- **tables**
- **table filters**

The % character is used as a wild card character.

*USRLIBL is a special value to identify all tables in the user portion of the library list.
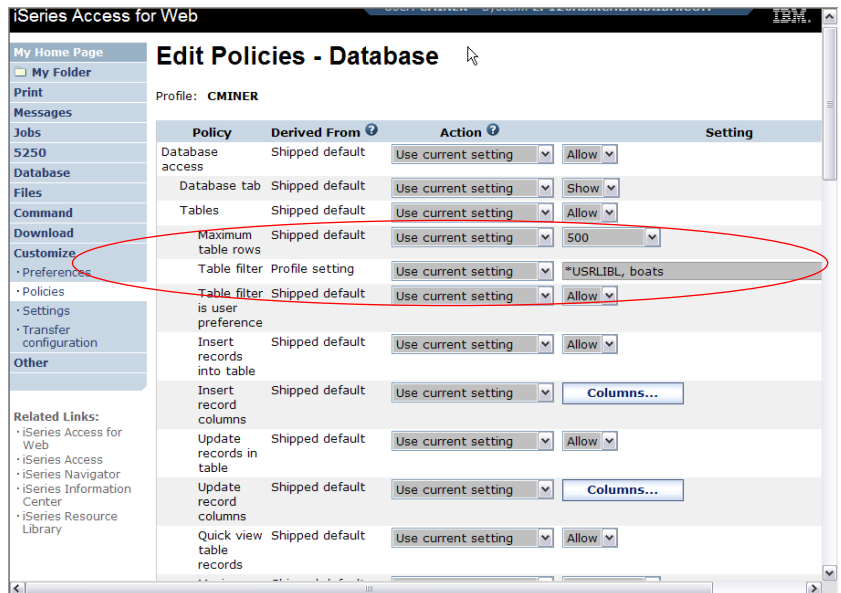
Tables look and feel – V5R3 version

The V5R3 template is included with V5R4 iSeries Access for Web

- **You can replace with this look if you wish**

Tables → Update Function

Wildcards may be used in the selection

Inserting New Records into A Table
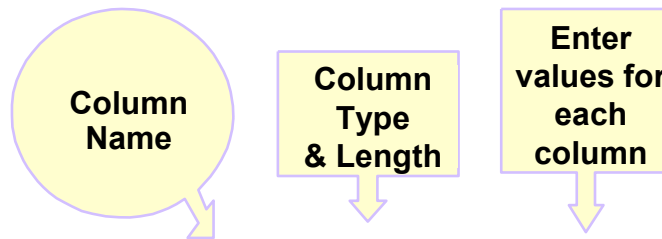
Column Name

Column Type & Length

Enter values for each column

iSeries Access for Web

User: **CMINER**   System: **LP126AB.RCHLAND.IBM.COM**

My Home Page	**Insert Record**
📁 My Folder	
Print	To insert a record, specify column values and click Insert Record. ❓
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Column	Type	Value	Description
BTYPE	CHAR(1)		P=Powered S=Sailing
BNAME	CHAR(30)		boat name
BFEET	NUMERIC(3,0)	0	Length in feet
BYEAR	NUMERIC(4,0)	0	Year built
BCOST	NUMERIC(9,0)	0	Price in US$
BNT01	CHAR(72)		Note 1
BNT02	CHAR(72)		Note 2
BNT03	CHAR(72)		Note 3
BNT04	CHAR(72)		Note 4
BNT05	CHAR(72)		Note 5

Tables → Find Record

If you don't want users 'updating', 'inserting' or 'deleting' records,

then let them use only the Find function only

New in V5R4

Run SQL

- **The Run SQL function allows you to type in a free-form SQL Statement**

- **If you do not know SQL, then use the SQL Wizard to help you generate an SQL SELECT statement**

- **Select from a variety of output formats, including:**
  - **Preview**
  - **PDF**
  - **.XLS (Excel)**
  - **XML**
  - **HTML**
  - **…**

Run SQL

SQL Statement

```
SELECT
   *
FROM
   BOATS.BOATS
```

SQL Wizard

SQL Output
Type: Preview — Settings
Destination: Browser — Settings

Format
Date: 11/30/05
Time: 4:44:15 PM

Connection
Connection: IBM Toolbox for Java - LP126AB.RCHLAND.IBM.COM

Run SQL   Save Request...

SQL Statement Details
- The SQL statement can be any statement supported by the underlying JDBC.

The SQL Wizard

The SQL Wizard helps you generate a single table SELECT statement

Identify the iSeries database - Table

Step 1:

Choose a table

Type in a table filter to help narrow your search. Many schemas (libraries) may be specified by putting them in a comma separated list

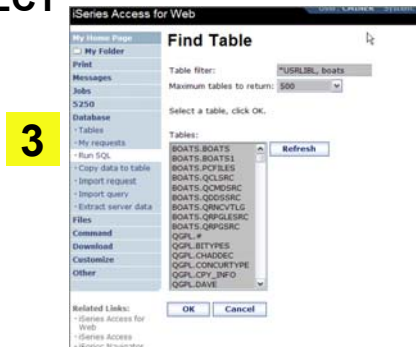**Select a table and click OK to use it to generate the SELECT statement**

1

2

3

Select your Output Columns

Step 2: Choose columns

- **Check the boxes next to the columns to include them in the statement**
  - If you check none, you get all columns

- **Click the column order button to change the order output**
  - Changed Price from 50 to 05 so it would be first
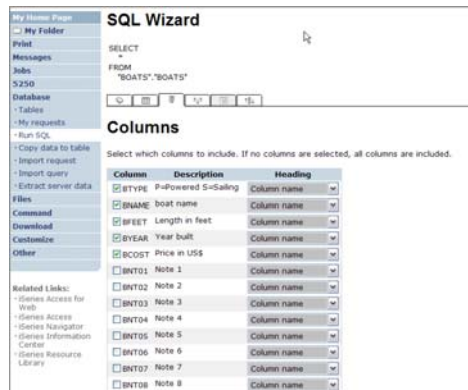
Specify Conditions

Step 3: Adding conditions

- **Conditions allow you to select records that meet certain criteria.**

- **Click Add New Condition to specify a condition.**

- **Select the column to use in the condition and click Next**

Choose the operator type

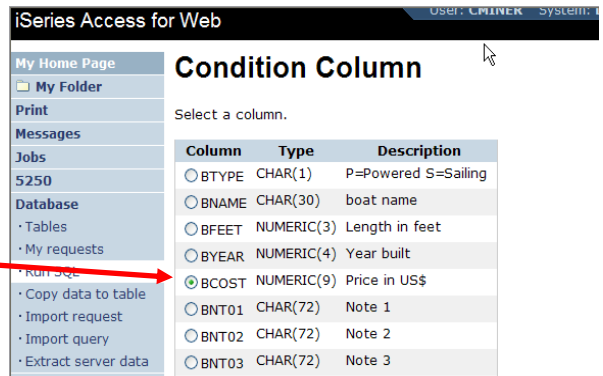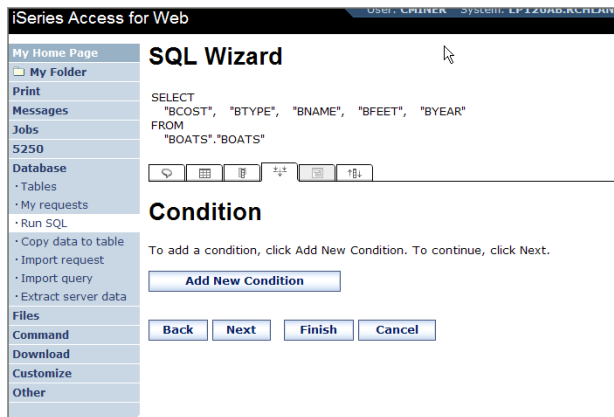- **The SQL wizard allows you to choose the operator to use in the condition**

- **The condition shows up both in the SQL and in a condition list. You may edit or delete the condition.**

- **You may also add additional conditions.**

iSeries Access for Web   User: CMINER   Sys

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Condition Operator

Column: BCOST   NUMERIC(9)   Price in US$

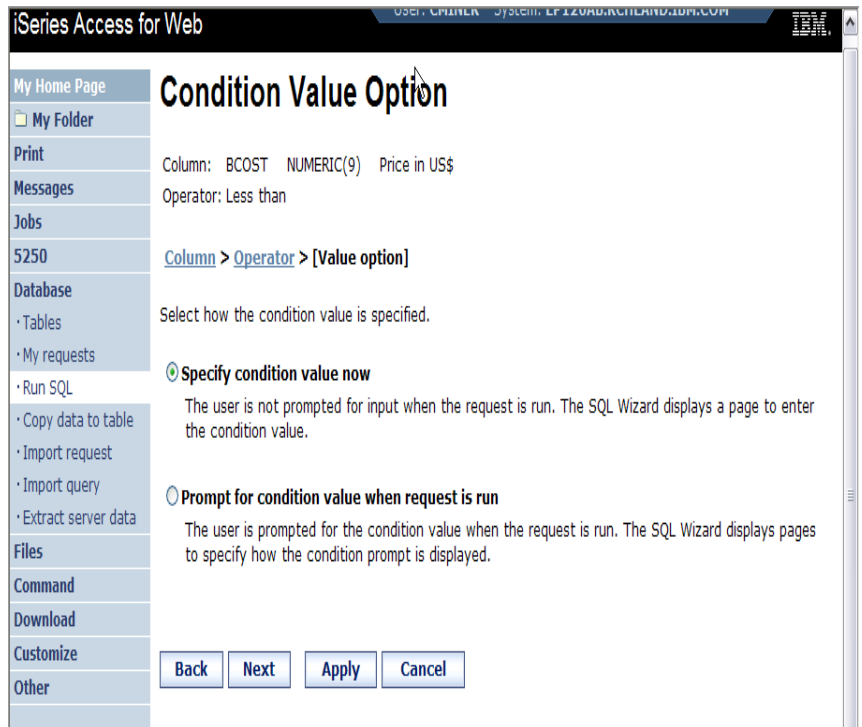Column > [Operator]

Select an operator.

○ Exactly equal to   ○ Between
○ Not equal to   ○ Not between
○ Greater than   ○ Null
○ Greater than or equal to   ○ Not null
◉ Less than
○ Less than or equal to

[Back]   [Next]   [Apply]   [Cancel]

Choose static versus dynamic

- **The SQL wizard allows you to choose the if the condition value is specified in the request, or is prompted for when the request is run.**

- **Static or Dynamic**

iSeries Access for Web

User: CHINER   System: LP126AB.RCHLAND.IBM.COM   IBM

Condition Value Option

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Column: BCOST   NUMERIC(9)   Price in US$
Operator: Less than

Column > Operator > [Value option]

Select how the condition value is specified.

⦿ Specify condition value now
   The user is not prompted for input when the request is run. The SQL Wizard displays a page to enter the condition value.

○ Prompt for condition value when request is run
   The user is prompted for the condition value when the request is run. The SQL Wizard displays pages to specify how the condition prompt is displayed.

[Back]   [Next]   [Apply]   [Cancel]

New in V5R3

Specifying a Static Value

- **The SQL wizard allows you to specify the value for the condition.**

- **The value can be:**
  - **A value,**
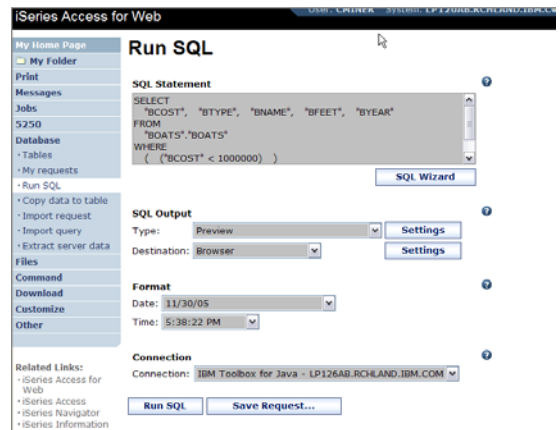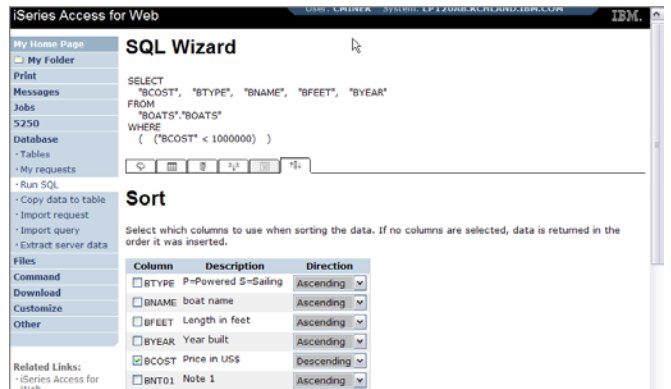 - **Constant or**
  - **Other specific function**
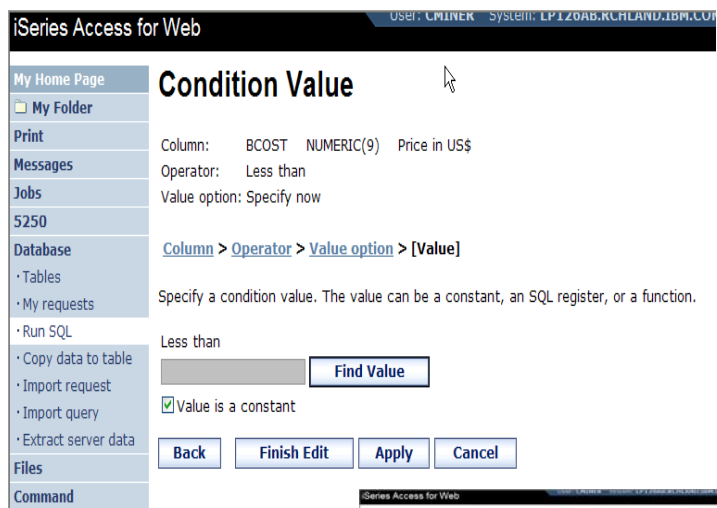
**Can find values in table**

The statement is complete!

- **The statement is now complete.**

- **Click the Finish button (not shown) on the bottom of the SQL Wizard page to return to Run SQL**

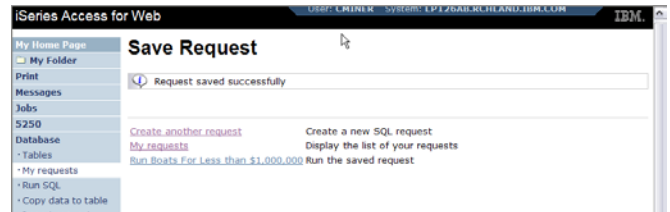- **The SELECT statement you generated is available for use in Run SQL**

Save the SQL Request

- **After creating a statement, by hand or with the Wizard you also have the option to store the statement for later use**
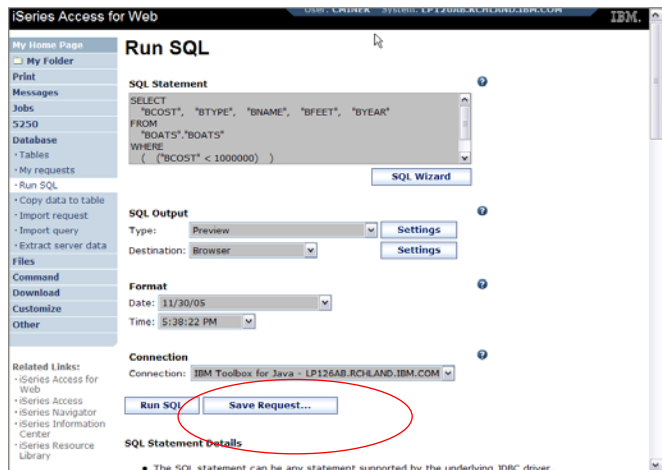
- **Can Run it now**
Or
- **Run it later from "My Requests"**

Dynamic Query – condition value

- **Select to prompt for values when the request is run**

iSeries Access for Web

User: CMINER   System: LP120AB.RCHLAND.IBM.COM

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Condition Value Option

Column: BCOST   NUMERIC(9)   Price in US$
Operator: Less than or equal to

Column > Operator > [Value option]

Select how the condition value is specified.

○ **Specify condition value now**

The user is not prompted for input when the request is run. The SQL Wizard displays a page to enter the condition value.

◉ **Prompt for condition value when request is run**

The user is prompted for the condition value when the request is run. The SQL Wizard displays pages to specify how the condition prompt is displayed.

| Back | Next | Apply | Cancel |

Chose Operator and Prompt Type

- **Choose a comparison operator just like we did in the static query example**

- **Select how the user will be prompted for the values**
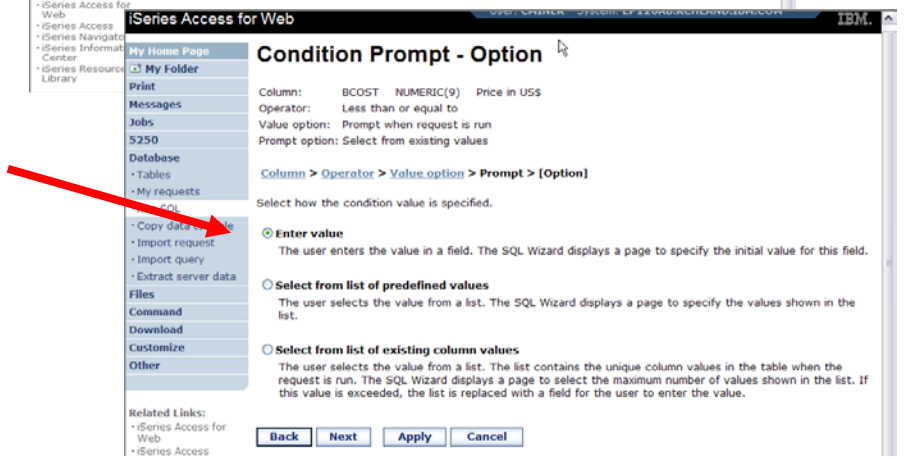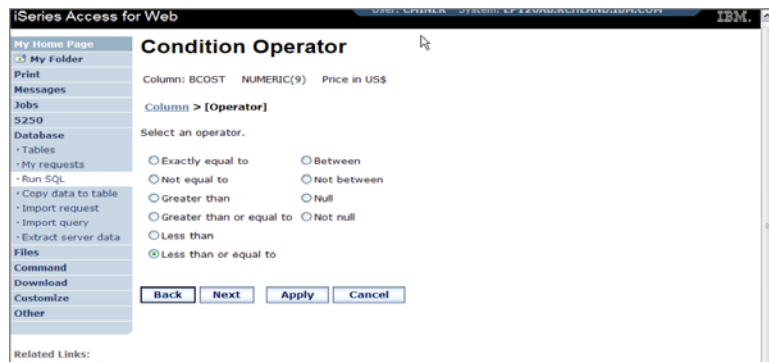
Chose Operator and Prompt Type

- **Setting Initial Value that Boats can cost equal to or less than $3,000,000**

- **Adding Text to explain to user what to enter in this column**

- **User can then change value**
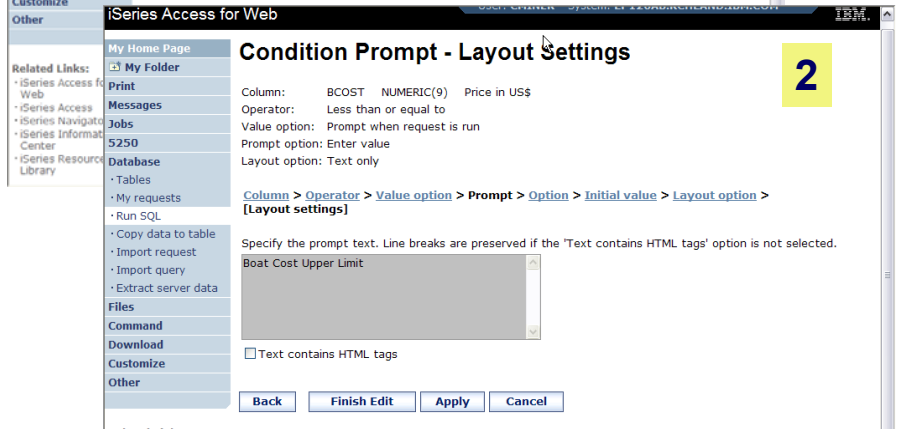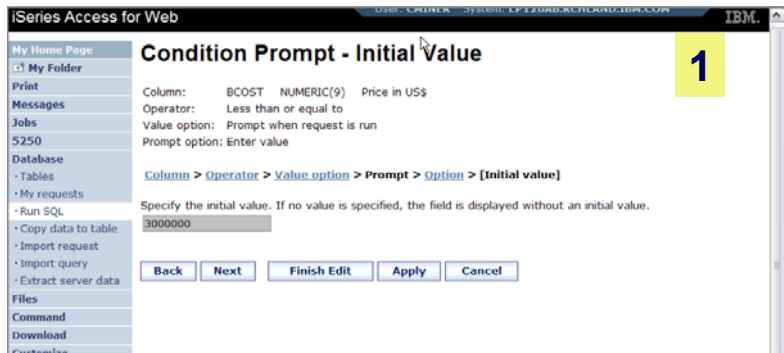
Can Include Multiple Conditions on Dynamic SQL Requests

- **Let's add another condition to this Dynamic SQL Request**

iSeries Access for Web

SQL Wizard

```
SELECT
  "BCOST", "BTYPE", "BNAME", "BFEET", "BYEAR"
FROM
  BOATS.BOATS
WHERE
  ( ("BCOST" <= ?) )
```

Condition

Action	Condition	Prompt Label	Prompt Text	Prompt Option
✏ 🗑	("BCOST" <= ?)		Boat Cost Upper Limit	Enter value

To add a condition, click Add New Condition. To continue, click Next.

Add New Condition

Back   **Next**   **Finish**   **Cancel**

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· Import request
· Import query
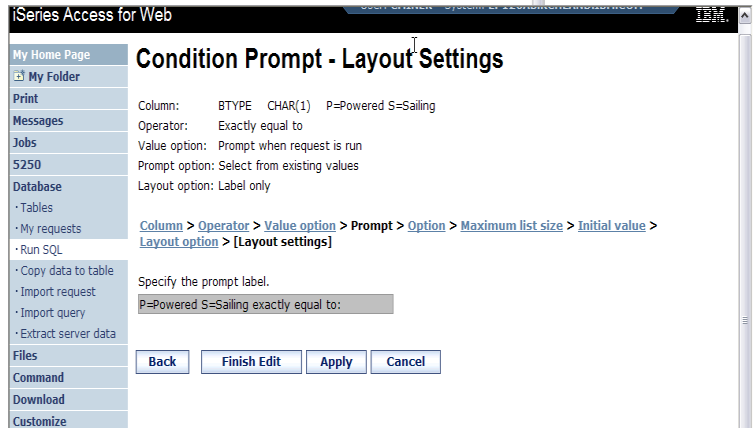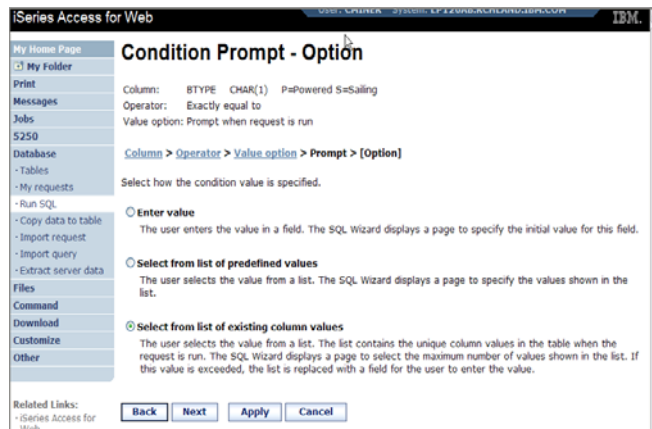· Extract server data
Files
Command
Download
Customize
Oth...

Related Links:
· iSeries Access for Web
· iSeries Access
· iSeries Navigator
· iSeries Information Center
· iSeries Resource Library

Setting up Additional Operator and Prompt Type

- **For 'Type of Boat', we will select from list of Types in our Database File**

- **Two (2) types of boats in the database file**

Set Display Order and See Conditions Set

- **Will display information based on 'Boat Cost' in descending order**

- **Shows how SQL has been written based on 2 Conditions**

User Runs Dynamic Query built with 2 Conditions

Users selects
- **Maximum cost of boat**
- **Type of Boat**

iSeries Access for Web   User: CMINER

Run SQL

| My Home Page |
| My Folder |
| Print |
| Messages |
| Jobs |
| 5250 |
| Database |
| · Tables |
| · My requests |
| · Run SQL |
| · Copy data to table |
| · Import request |

Boat Cost Upper Limit

1000000

P=Powered S=Sailing exactly equal to: S ▼

[OK] [Cancel]

The SQL Output was set up to show in Descending Order by Boat Cost

iSeries Access for Web   User: CMINER   System: LP120AB.RCH...

SQL Output

BCOST	BTYPE	BNAME	BFEET	BYEAR
450000	S	Merlin's Magic	54	1990
269500	S	Seafinn 411 Motorsailer Ketch	41	1989
179500	S	Fountaine Pajot Antigua	37	1993
179000	S	Nauticat 40	40	1989
159900	S	Shannon 50 ketch	50	1981
149000	S	Brandlmayr 48	48	1985
80000	S	Garden Design Porpoise Ketch	51	1974
69950	S	Corsair 27	27	1994
69000	S	Morgan 382 Race/Cruise Sloop	38	1978
63000	S	Mariner Ketch	40	1979
57900	S	Hunter 33.5	33	1990
27500	S	Bill Garden Schooner	36	1953

Dynamic query – wizard warning

- **Dynamic queries generated by the wizard can only be modified using the wizard**

- **If you wish to create your own you will need to manually add parameter markers directly into the SQL statements**
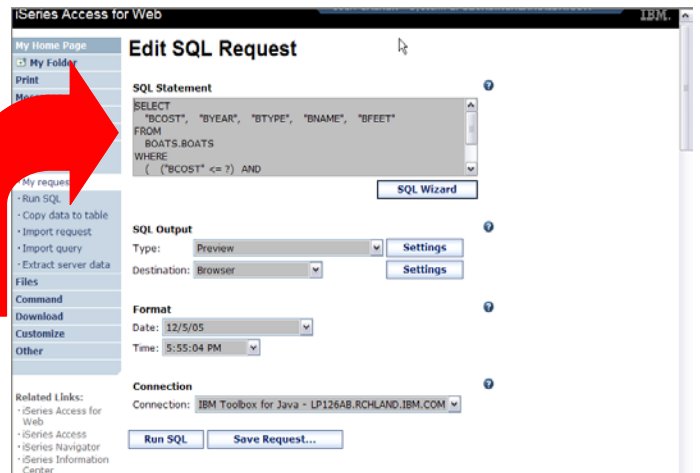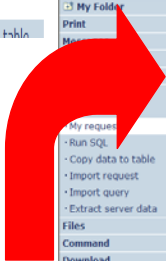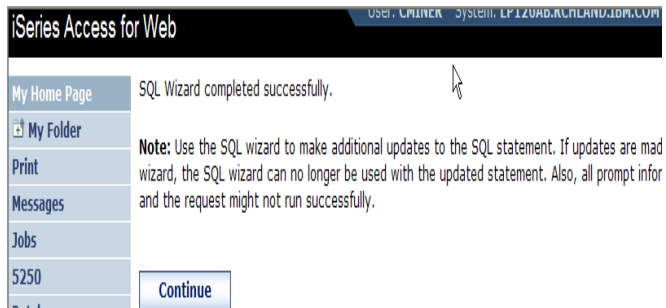
Dynamic Query – Form Example

- **Want to use different button style**
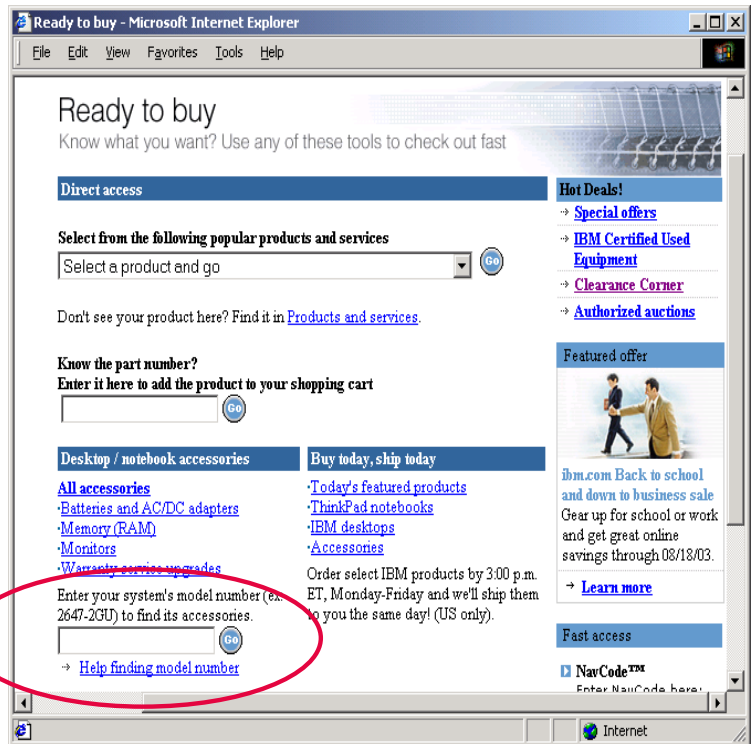- **Want button next to prompt control, not underneath it**

Form element:
<FORM name=accessories action="http://server/webaccess/ iWADbExec" method="get">

Hidden element:
<input type="hidden" name="request" value="req" />

Entry field:
<input type="text" name="iwaparm_1" value="" />

Great way to add Database requests to your existing web pages

SQL Output Destinations

SQL Output Destinations

Choosing a destination

Choose from 4 different output destinations:

- **Browser**

- **Email**

- **Personal folder**

- **V5R4** **Integrated File System**

Run SQL – Output Browser

The SQL statement is built indicating that Output Type is Microsoft Excel.

Browser sees the .xls format type and automatically starts Excel on the desktop, and puts results in a spreadsheet

Run SQL – Destination EMAIL

The SQL statement is built indicating that:

➢**Output Type is PDF**
➢**Destination is EMAIL**
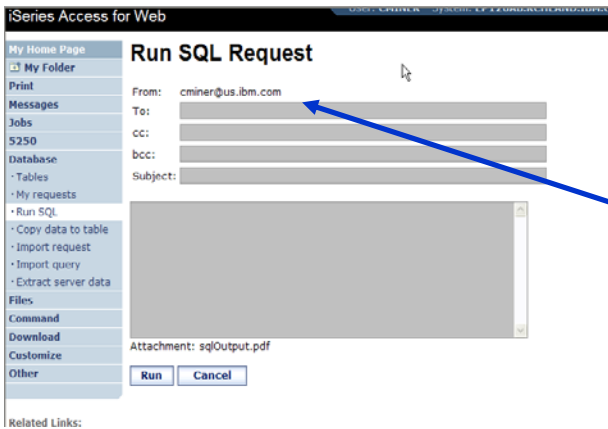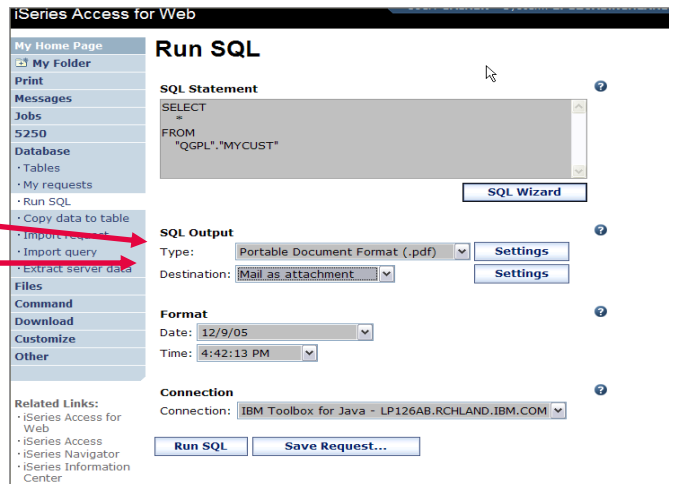
Access for Web converts SQL output to .PDF and attaches it to an email.
Note: my email address has been filled in for me

Run SQL – My Personal Folder

The SQL statement is built indicating that:

➢ **Output Type is HTML**
➢ **Destination is My Folder**

➢ **Click on** <u>My Folder</u> **link**
➢ **Select My SQL Output**
➢ **Shown to me in HTML**

Run SQL – Integrated File System

The SQL statement is built indicating that:

1. **Output Type is HTML**
2. **Destination is Integrated File System**
3. **Next screen select 'CMINER' directory**
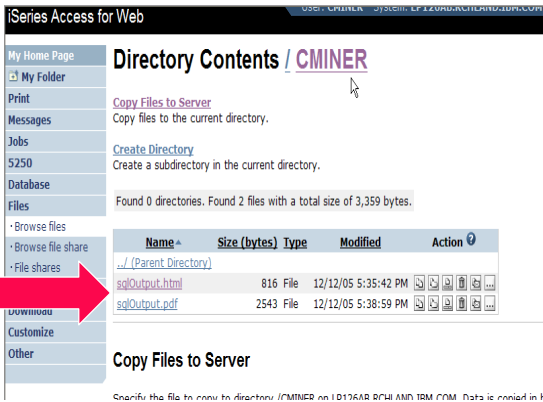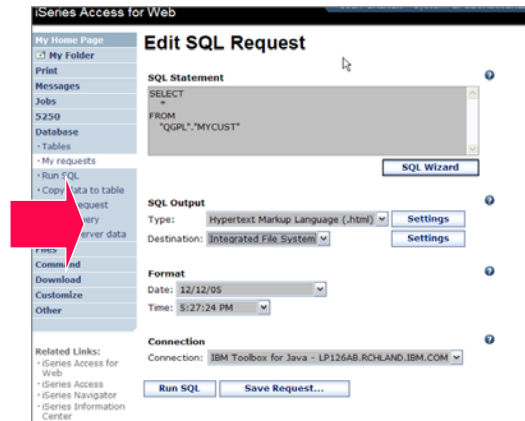
4. **Click on 'Files' tab**
5. **Open CMINER directory**
6. **Click on File Name**
7. **Results shown in HTML**

Destination Settings

You can specify the folder and mail settings before the request is run

Or you can wait until the request is run

Import Requests and Queries
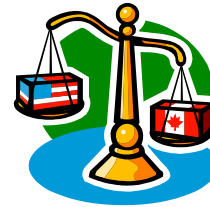
Importing Client Access Data Transfer Requests

Import your existing iSeries Access for Windows and Client Access Data Transfer requests into iSeries Access for Web!
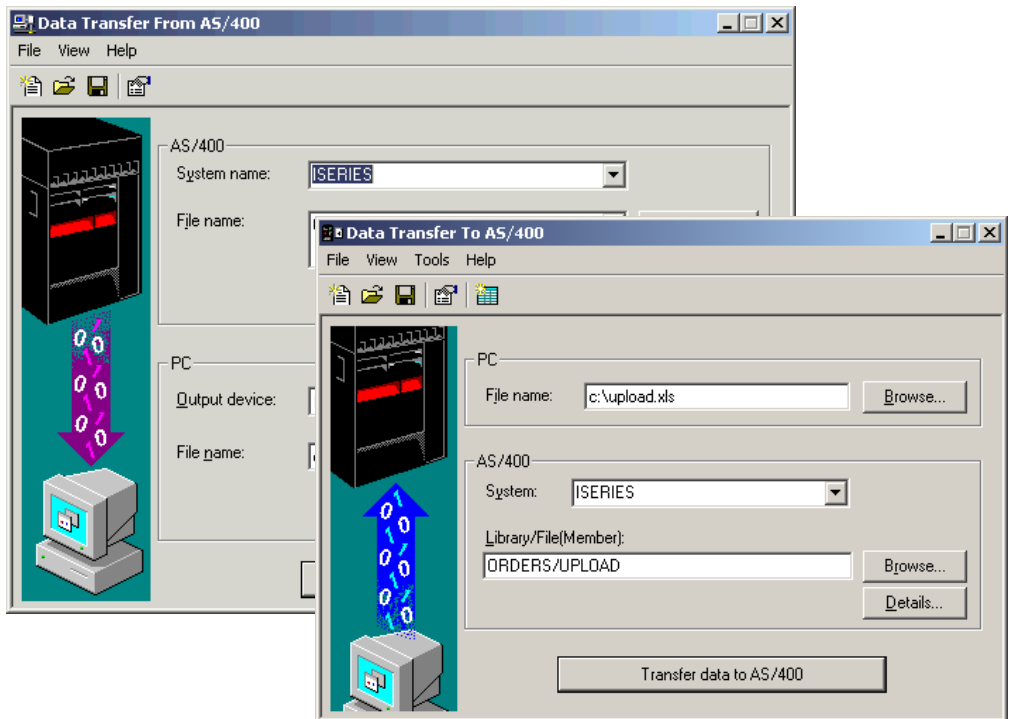
Import Function

Don't lose your investment in already built Data Transfer requests

Import them into iSeries Access for Web

The imported transfer request may be run or saved as an iSeries Access for Web request

Then users can run them from their browsers!

iSeries Access for Web   User: CMINER System: LP126AB.RCHLAND.IBM.COM   IBM

| My Home Page |
| My Folder |
| Print |
| Messages |
| Jobs |
| 5250 |
| Database |
| · Tables |
| · My requests |
| · Run SQL |
| · Copy data to table |
| · Import request |
| · Import query |
| · Extract server data |
| Files |
| Command |
| Download |
| Customize |
| Other |

Import Client Access Data Transfer Request

Specify the Client Access Data Transfer request you want to import. The request will be converted to an iSeries Access for Web request.

Note: The converted iSeries Access for Web request could work differently than the Client Access request. Verifying the converted request is strongly recommended.

Request to Import

Client Access request: [   ] [Browse...]

Character set: [Western [windows-1252]   ▼]

[**Import Request**]

Import Details

- The supported transfer request files are as follows:
  - IBM Client Access Express Data Transfer From AS/400 .DTF files
  - IBM Client Access for Windows 95/NT Data Transfer From AS/400 .TTO files
  - IBM Client Access Express Data Transfer To AS/400 .DTT files
  - IBM Client Access for Windows 95/NT Data Transfer To AS/400 .TFR files
- Data Transfer From AS/400 request files are converted to settings that can be used by Run SQL.
- Data Transfer To AS/400 request files are converted to settings that can be used by Copy data to table.
- Choosing an incorrect character set may result in an incorrectly imported request file.

Related Links:
· iSeries Access for Web
· iSeries Access

Import Query Requests

Bring your existing queries to a browser environment

Use the Import Query tool to bring them into iSeries Access for Web

- **IBM Query for iSeries (5722-QU1)**

- **DB2 Query Manager (5722-XT1)**

*QMQRY and *QRYDFN are the query file types supported

User: **CMINER** System: **LP126AB.RCHLAND.IBM.COM**

iSeries Access for Web

My Home Page
□ My Folder
Print
Messages
Jobs
5250
Database
· Tables
· My requests
· Run SQL
· Copy data to table
· Import request
· Import query
· Extract server data
Files
Command
Download
Customize
Other

Related Links:
· iSeries Access for Web
· iSeries Access

Import Query

Specify the query file you want to import. The query contained in the query file will be converted to an iSeries Access for Web database request.

Note: The converted iSeries Access for Web database request could work differently than the original query file. Verifying the converted request is strongly recommended.

Query to Import

Query file: [Find...]

Query type: DB2 UDB for iSeries Query Manager (*QMQRY) ▾

Query file CCSID: Query for iSeries (*QRYDFN)
             DB2 UDB for iSeries Query Manager (*QMQRY)

[**Import Query**]

Import Details

Query files of types *QMQRY and *QRYDFN are supported. These query files are created by Query for iSeries and DB2 UDB for iSeries Query Manager. Queries of type form, queries of type procedure, and prompted queries, are not supported. Queries containing program variables or replacement variables are also not supported.

New in V5R4

Extract Server Data

- **Extract i5/OS object information into a database table or tables.**

- **Then use Tables or Run SQL functions to retrieve relevant data.**
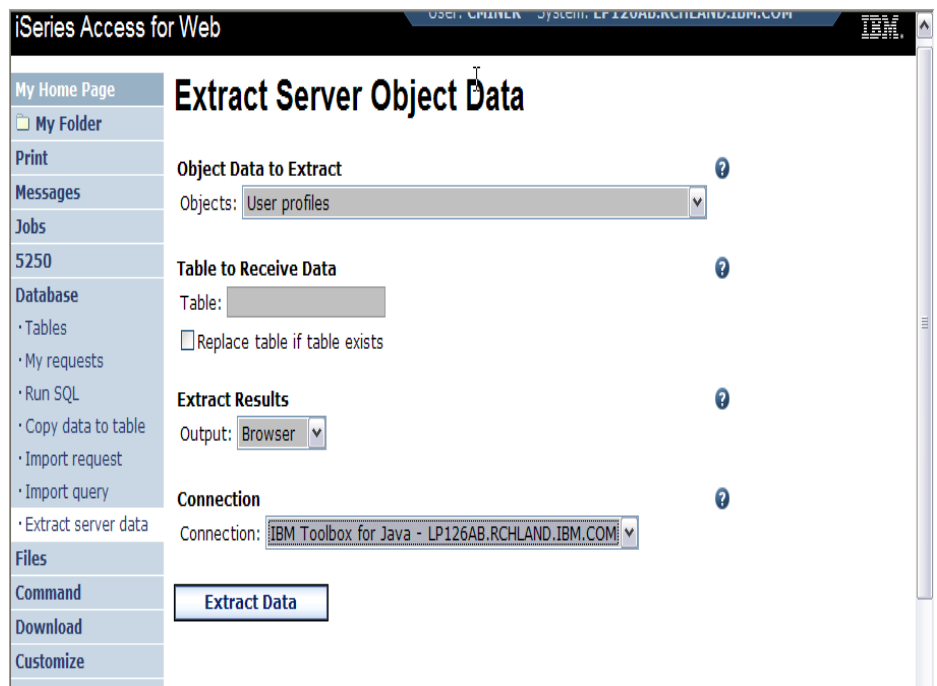
Extract Server Data

Extract Server Data can be used to retrieve information about objects on the iSeries server, and then store the results in a database table

- **General object information can be retrieved for any iSeries object type.**
- **Object specific information can also be retrieved for the following object types:**
  - Directory entries
  - Messages
  - Software fixes
  - Software products
  - System pool
  - User profiles

You could easily build a query:

- **To find out what users have used more than 100 MB of storage in the IFS**
- **Or you might want to know what users have had more than 2 invalid sign-on attempts in the past three months.**

This very powerful capability lets you look at your iSeries information in any manner that is of importance to you.

Content

Applications

Portal Technology

People

Processes
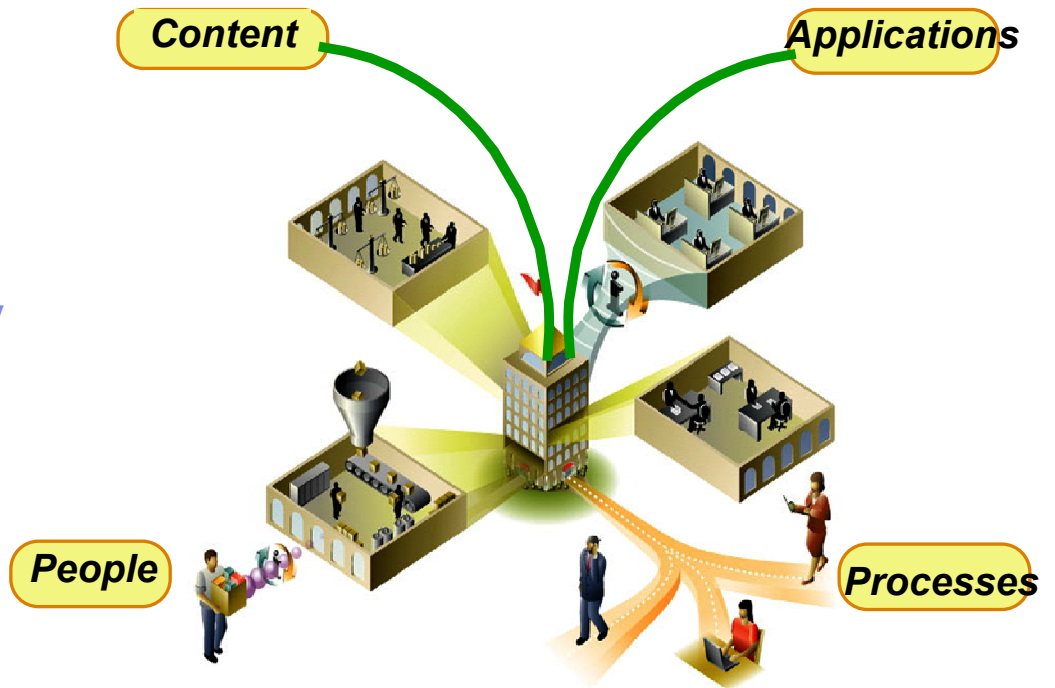
Support for IBM WebSphere Portal

The next wave in technology

Database views in Portal

Example of how Database functions look in a WebSphere Portal environment

V5R4 Database enhancements:

iSeries SQL Requests has been added

- **So you can create, save, manage, and run saved SQL requests**

iSeries SQL Results – A Viewer has been added
- **so you can view the results of running a saved iSeries SQL request**
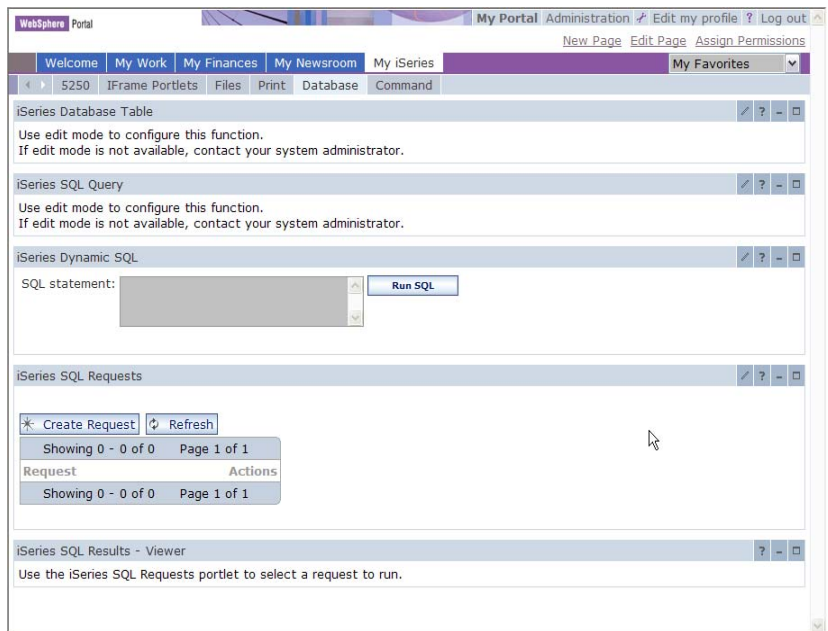
Security and Administrative differences between the products

Security – Access to iSeries Database

All database requests in iSeries Access for Windows, iSeries Access for Web, and iSeries Access for Linux flow through the iSeries Access Database Server

iSeries Access Database Server

➢ **OS/400 Object Level Security**
➢ **Exit Programs**

Database and Source Physical Files

All objects on the server, including SQL objects, are managed by the system security function

- Most IBM SQL operations go through the iSeries Database DB Host Server and use the QIBM_QZDA server exit point.
- This includes Data Transfer, ODBC, .NET, parts of OLE DB, and some functions of the Toolbox (JDBC including Access for Web).
- *See: http://publib.boulder.ibm.com/iseries/v5r2/ic2924/index.htm?info/sqlp/rbafymst324.htm*
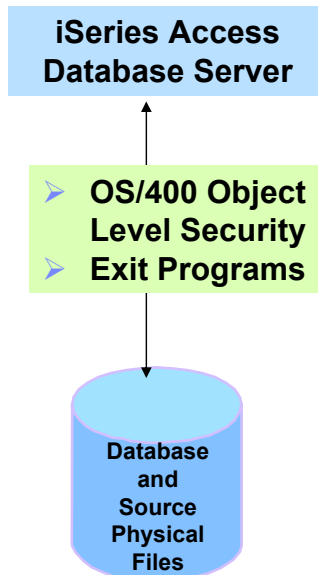
Exit Programs

- Exit programs written for the QIBM_QZDA NDB, ROI, and SQL exit points may help to restrict certain users from accessing specific files.
- Configured with WRKREGINF on the iSeries
- Given the SQL statement sent from the client application (Data Transfer). Statements may be rejected by the user exit program
- May be written in a variety of host languages

Control Use of Functions

iSeries Access for Windows

Can restrict user access to Data Transfer functions through:

- **Application Administration (iSeries Navigator), and/or**
- **Microsoft Policies using Microsoft Policy Editor and iSeries Access for Windows Policy Template (CWBADGEN)**

iSeries Access for Web

Can restrict user access to Database functions through:

- **Policy Customization**

iSeries Access for Linux

No additional controls

Application Administration

iSeries Access for Windows

Control access to Data Transfer functions by OS/400 User Profiles (specific users, groups of users, all users…)

Application Administration is accessed via iSeries Navigator.

- **Click on iSeries system name, then right click.**

- **Pulldown has Application Administration.**
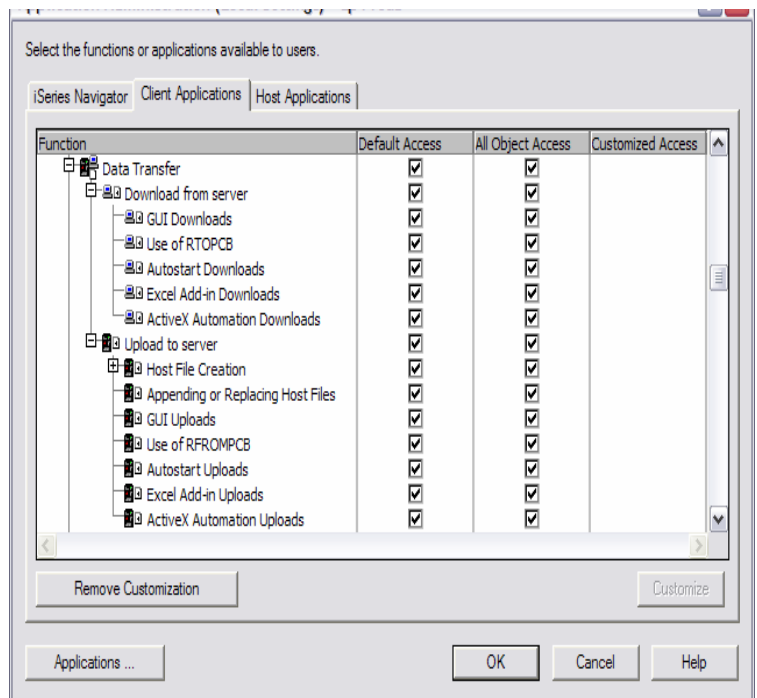
Microsoft System Policies

POLEDIT.EXE

Controlling Access via Policies

Data Transfer From iSeries - Limiting downloads

- **Prevent usage of Data Transfer From iSeries**

- **Prevent usage of Data Transfer GUI**

- **Prevent usage of RTOPCB command**

- **Prevent autostart uploads**

- **Prevent usage of Excel-Add In**

Limiting users to only autostart downloads will help to prevent them from modifying transfer requests and keep them from downloading any file they have read access to on the iSeries.

Default User Properties

Policies

- IBM iSeries Access Runtime Restrictions
  - Data Transfer
    - Data Transfer Uploads
      - Prevent all Data Transfer to server
      - Data Transfer uploading options
    - Data Transfer Downloads
      - Prevent all Data Transfer from server
      - Data Transfer downloading options
        - Prevent Data Transfer GUI Downloads
        - Prevent usage of RTOPCB
        - Prevent autostart downloads
        - Prevent Excel add-in downloads
    - Server file creation
  - Directory Update

OK   Cancel

iSeries Access for Windows

Policies

Control Access to Database functions by restricting access to iSeries Access for Web functions.

Restrict by specific user, groups of users, all users

Requires SECADM authority to use

- **a non-SECADM user can be granted the rights to administer iSeries Access for Web**

iSeries Access for Web

Appendix A: Comparisons: Similarities / Differences

- **iSeries Access for Windows**

- **iSeries Access for Web**

Comparison of Database Capabilities

Feature / Function	iSeries Access for Windows	iSeries Access for Web	iSeries Access for Linux
ODBC driver	Yes	No	Yes
OLE DB provider	Yes	No	No
.NET provider	Yes	No	No
From an iSeries, start programs/commands on PC • Incoming Remote Command	Yes	No	No
GUI to find, add, update, delete selected records in an iSeries database Table	No	Yes	No
GUI to convert query results to .PDF format			
GUI to e-mail query results in one step	No	Yes	No
Wizard to import Query/400 SQL requests	No	Yes	No
Wizard to import Query Manager SQL requests	No	Yes	No
Wizard to import iSeries Access for Windows Data Transfer requests	No	Yes	No
Programming Support •ActiveX automation Objects •Limited support using java.net.URL and the documented URL Interfaces	Yes No	No Yes	No No

Comparison of Data Transfer and Access for Web Database

Feature / Function	iSeries Access for Windows	iSeries Access for Web
• **All SQL Statements Supported** • **Wizards to build SELECT statements and convert to PC format** • **Can build SELECT statements with group, having, and join support** • **Can create dynamic queries (prompted for input at time of running)** • **Access to members other than the default member**	• **Yes** • **Yes** • **Yes** • **No** • **Yes**	• **SELECT only** • **Yes** • **No** • **Yes** • **No**
• **Wizards to upload PC data to iSeries DB2** • **Support for Source Physical Files**	• **Yes** • **Yes (sequency and data generated on uploadsns not returned by default)**	• **Yes** • **No** **(treated the same as other Table Values)**
• **Upload data directly from Excel** • **Excel dates/times handled as dates/times**	• **Yes** • **Yes**	• **No** • **No, handled as character strings**
• **Can run predefined saved requests** • **Schedule requests to run silently** • **Can Share requests amongst users** • **Can run multiple requests simultaneously (batch)** • **Asynchronous Processing (ie, control returned before request completes)**	• **Yes** • **Yes** • **No, put on shared drive** • **Yes (RTOPCB, RFROMPCB)** • **No**	• **Yes** • **No** • **Yes, via Shortcuts** • **No** • **Yes (except for Browser option)**

Request Types

iSeries Access for Web	iSeries Access for Windows
Database Requests From iSeries 1. Requests are saved by User name, extension types are not displayed 2. An "Import" Facility (*) can be used to convert iSeries Access for Windows Data Transfer requests to iSeries Access for Web requests	**Data Transfer From iSeries** 1. .DTF - New request type used by iSeries Access for Windows 2. .TTO - Request type used in 5763-XD1 and DOS Extended clients 3. .DT - Request type used in Windows 3.1 client 4. .RTO - Rumba transfer request file
Database Requests To iSeries 1. Requests are saved by User name, extension types are not displayed 2. An "Import" Facility (*) can be used to convert iSeries Access for Windows Data Transfer requests to iSeries Access for Web requests	**Data Transfer To iSeries** 1. .DTT - New request type used in iSeries Access for Windows 2. .TFR - Request type used in 5763-XD1 and DOS Extended clients 3. .DT - Request type used in Windows 3.1 client 4. .RTO - Rumba transfer request file

(*) RTO files are not supported by Import Facility in iSeries Access for Web

Supported File Formats

Supported file formats	iSeries Access for Web Database (servlets)	iSeries Access for Windows Data Transfer
• **Comma Separated Variable**	Yes	Yes
• **Data Interchange Format**	Yes	Yes
• **Extensible Markup Language (XML)**	Yes	Yes
• **Hyper Text Markup Language (HTML) (on downloads)**	Yes	Yes
• **No conversion**	No	Yes
• **ASCII Text**	Yes	Yes
• **Text – Tab delimited**	Yes	Yes
• **Basic Random**	No	Yes
• **Basic Sequential**	No	Yes
• **DOS Random**	No	Yes
• **DOS Random Type 2**	No	Yes

Supported File Formats (continued)

Supported file formats	iSeries Access for Web Database (servlets)	iSeries Access for Windows Data Transfer
▪ **Preview (on downloads)**	**Yes**	**Yes**
▪ **Portable Document Format (PDF) (on downloads)**	**Yes**	**No** **(can send to PC printer by selecting 'Print' as output device)**
▪ **Microsoft Excel Version 3**	**Yes**	**Yes**
▪ **Microsoft Excel Version 4**	**Yes**	**Yes**
▪ **Microsoft Excel Version 5**	**No**	**Yes**
▪ **Microsoft Excel Version 7**	**No**	**Yes**
▪ **Microsoft Excel Version 8**	**No**	**Yes**
▪ **Microsoft Excel XML**	**Yes**	**Yes**
▪ **Lotus 123**	**No**	**Yes**
▪ **Lotus 123 Version 1**	**Yes**	**No**
▪ **Lotus 123 Version 4**	**No**	**Yes**
▪ **Lotus 123 Version 9**	**No**	**Yes**

Microsoft Excel Support

What is significance of various Microsoft Excel formats supported?

1. **Microsoft Excel XML - is the newest type supported by Excel and Word, and it is a defined format that is easy to parse programmatically.**
2. **For iSeries Access for Web, the Microsoft Excel XML file type is the only "native" Excel file type that is supported for working with very large amounts of rows.**
3. **iSeries Access for Windows enables you to work with large amounts of rows using BIFF5, BIFF7, BIFF8 file types.**

Supported file formats	iSeries Access for Web Database (servlets)	iSeries Access for Windows Data Transfer
▪ **Microsoft Excel Version 3**	**Yes**	**Yes**
▪ **Microsoft Excel Version 4**	**Yes**	**Yes**
▪ **Microsoft Excel Version 5**	**No**	**Yes**
▪ **Microsoft Excel Version 7**	**No**	**Yes**
▪ **Microsoft Excel Version 8**	**No**	**Yes**
▪ **Microsoft Excel XML**	**Yes**	**Yes**

Overall Strengths

iSeries Access for Windows Data Transfer

- Runs natively on Windows; can also run on a Windows web server
- Provides an SQL-like interface to allow full file SELECT or customized queries including joins, sorting, and record grouping. Can run advanced queries.
- Transfer source physical files and data physical files to PC file types
- Transfer PC file types to the source and data physical files on the iSeries.
- Transfers may be run interactively, in batch mode, and programmatically
- Can run requests by clicking an icon
- Can schedule data transfers
- Has Excel Add-ins
- Has ActiveX Automation Objects

iSeries Access for Web Database:

- Runs on an iSeries web server; sends HTML to browser
- You can work directly with Tables, including Find, Insert, Updating, Delete, and Add. You may also view the entire table.
- Can run any SQL statement
- Supports both Dynamic and Static queries
- SQL Wizard helps you build SELECT statements.
- Can email results in many data formats
- Can convert results to PDF
- Can create Requests and give to other users to run
- Can Import Client Access Data Transfer requests; and IBM Query for iSeries (5722-QU1) and DB2 Query Manager SQL requests.

Appendix B. HTML Output Types

Comparison of HTML support in

☆ **iSeries Access for Windows Data Transfer**
☆ **iSeries Access for Web**

Updating a Web server

Database Transfer to Workstation

1

HTML File Generated at PC

2

Send HTML output to Web Server File System

3

Client browsers view HTML on iSeries or PC Web Server

Client PC
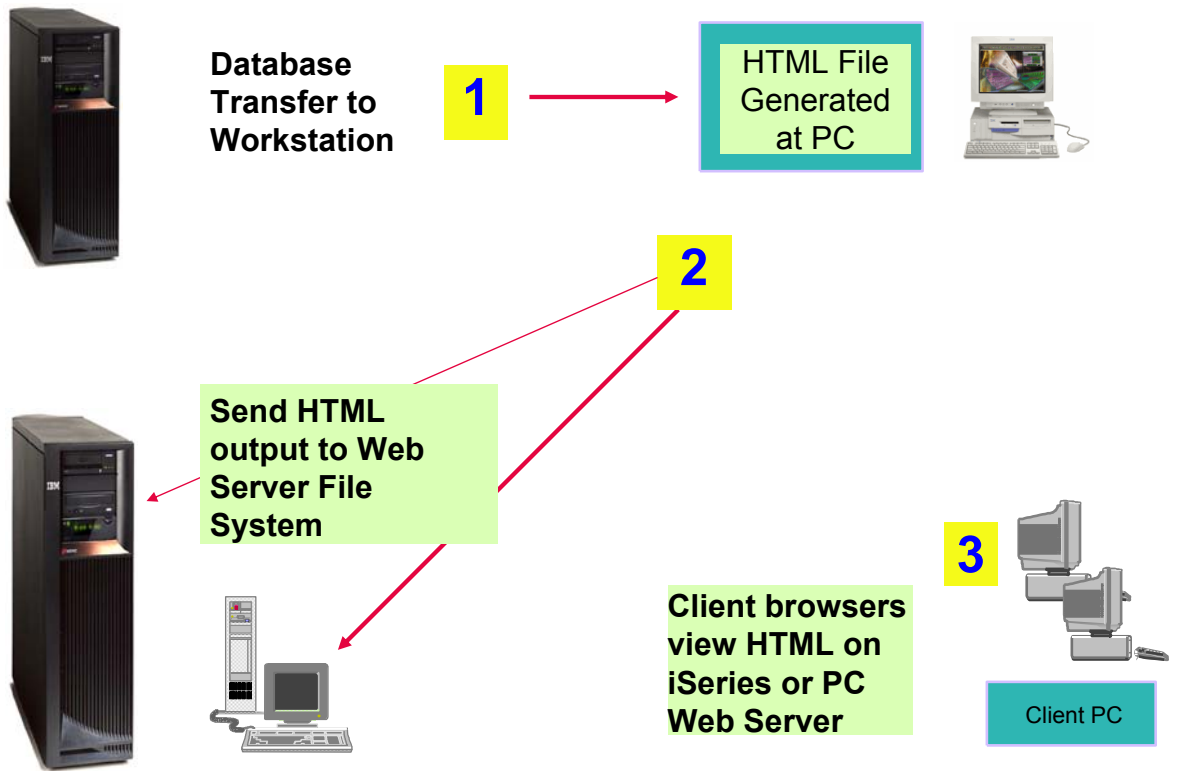
HTML Template support - enhancing web pages

HTML Template allows iSeries tabular data to be inserted into a pre-formatted HTML document at a specified location.

The location is defined by an embedded template tag.

The template document may contain graphics, links, frames, and any other HTML elements you provide.

HTML Details	? X

File | Document | Table | Caption | Row | Cell | Template

☑ Use HTML template file

Template file:

`C:\template.html`   Browse...

Embedded template tag:

`<!-- TABLE1 -->`

OK   Cancel   Apply   Help
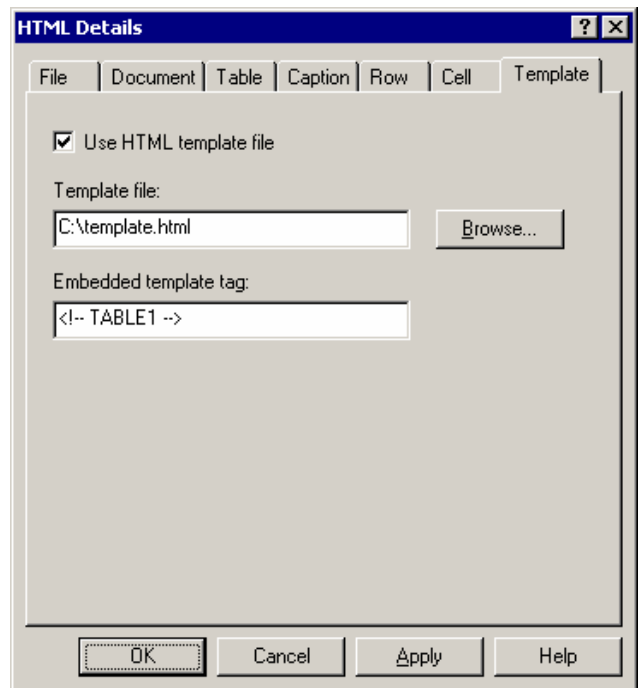
iSeries Access for Windows

Setting HTML properties

File

Document

- **Specify a title and timestamp**

Table

- **Specify spacing, alignment, and other table properties**

Caption

- **Specify whether to add a caption for your table**

Row

Cell

Template

HTML Details ? X

| File | Document | Table | Caption | Row | Cell | Template |

☐ Use auto sizing

Maximum file size: 128 KB

☑ Prompt before overwrite

Translation and charset

Translate EBCDIC to ⊙ ANSI
○ ASCII
○ UTF-8

Charset: windows-1252

[OK] [Cancel] [Apply] [Help]
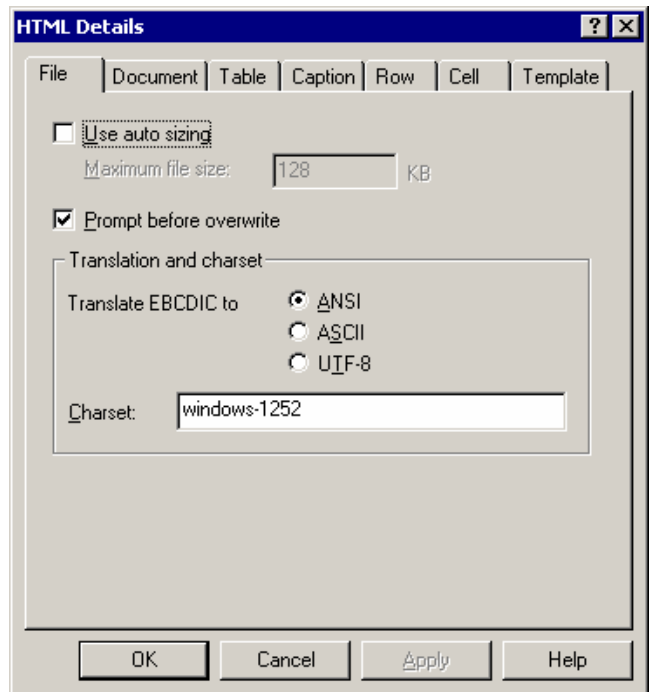
iSeries Access for Windows (continued)

Notes: Using Data Transfer with a Web server

Using HTML Template Files

```
<HTML>
<HEAD>
<TITLE>Sample HTML Code</TITLE>
</HEAD>
<BODY>
<H1>Customer Data</H1>
<!-- TABLE1 -->
</BODY>
</HTML>
```

When the transfer is run, the template file will be used as a base for the new HTML file. When data is received from the iSeries, the data will be formatted and will inserted in place of the <!-- TABLE1 --> tag.

DATALINK data type support

Transferring the DB2 UDB for iSeries DATALINK type to a HTML file will produce active links within your HTML File.

CUSTNAM	ADDRESS	PHONE	WEBSITE
IBM iSeries	Rochester, MN	800-426-3333	//www.ibm.com/eserver/iseries/index.html
COMMON	Chicago, IL	800-270-8223	//www.common.org/index.html
...	...	...	...

iSeries Access for Windows (continued)

Viewing Datalink Results

CUSNUM	LSTNAM	INIT	STREET	CITY	STATE	ZIPCOD	CDTLMT	CH
938472	Henning	G K	4859 Elm Ave	Dallas	TX	75217	5000	3
839283	Jones	B D	21B NW 135 St	Clay	NY	13041	400	1
392859	Vine	S S	PO Box 79	Broton	VT	5046	700	1
938485	Johnson	J A	3 Alpine Way	Helen	GA	30545	9999	2
397267	Tyron	W E	13 Myrtle Dr	Hector	NY	14841	1000	1

Viewing the results

HTML Output Settings

Many settings from:

- **Caption**

- **Table**

- **Cell data**
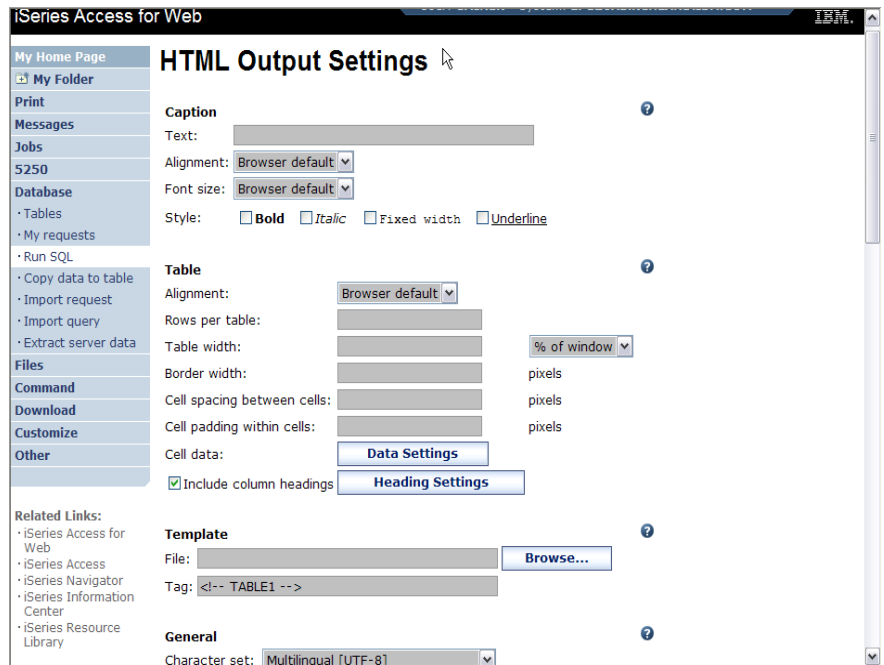
iSeries Access for Web

Displaying output in a paged list
iSeries Access for Web (continued)

❑ **Specify a value for 'Rows per table' to limit the number of rows displayed on a page**

Contrasting other layouts

Preview output type displays a limited number of rows per page, but you can't customize how the list is displayed

If you do not specify a value for 'Rows per table', all results are returned in a single page

iSeries Access for Web (continued)

A template file can be used to display custom content before and after the statement results

The template file must have previously been placed in the Integrated File System (IFS) on the iSeries server
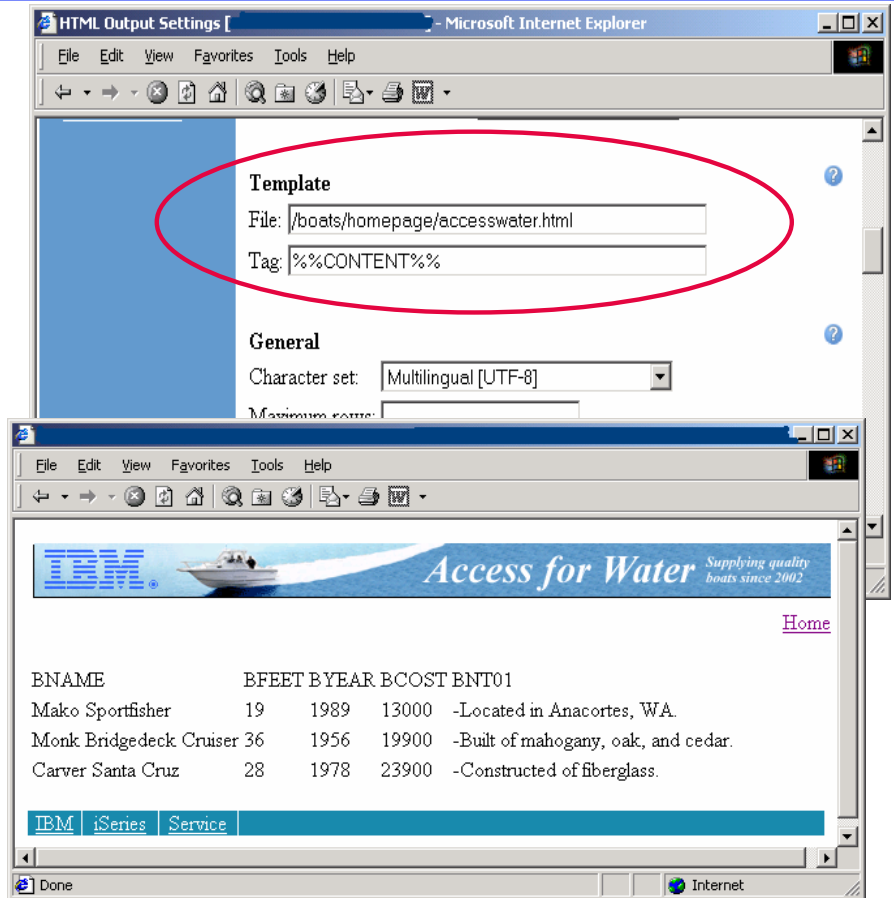
iSeries Access for Web **(continued)**

Example of template file

```
<HTML>
<BODY>
<table>
<tr><td>
<img SRC="boathead.gif" height=43 width=614>
</td>
  <tr>
   <td align="right">
     <a href="/webaccess/iWAHome">Home</a>
   </td>
  </tr>
</table>
<br>
%%CONTENT%%
<br>
<BODY>
</HTML>
```

*iSeries Access for Web **(continued)***

Appendix C. Programmer Toolkits

Programming Toolkits

The following ship with iSeries Access for Windows and are separately installable options:

IBM® Toolbox for Java™ is a set of Java(TM) classes that allow you to use Java programs to access data on your iSeries™ servers. You can use these classes to write client/server applications, applets, and servlets that work with data on your iSeries. You can also run Java applications that use the IBM Toolbox for Java classes on the iSeries Java virtual machine (JVM).

- **The GUI Builder is a WYSIWYG visual editor for creating Java dialogs, property sheets and wizards.**

- **The Resource Script Converter converts Windows resource scripts into an XML representation that is usable by Java programs. These converted files can then be edited with the GUI Builder.**
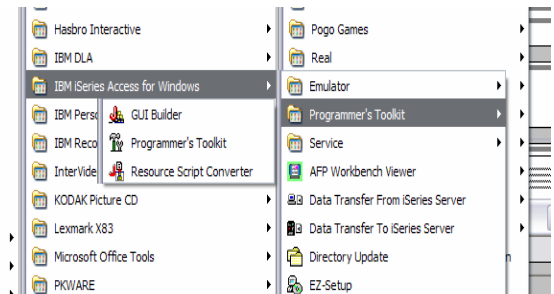
The iSeries Access Programmer's Toolkit should be used as the primary source of information about iSeries Access for Windows application development. This includes programming with iSeries Access for Windows ActiveX Automation Objects, ADO/OLE DB, .NET, and Java. The Programmer's Toolkit contains links to header files, sample programs, and complete documentation.

GUI Builder
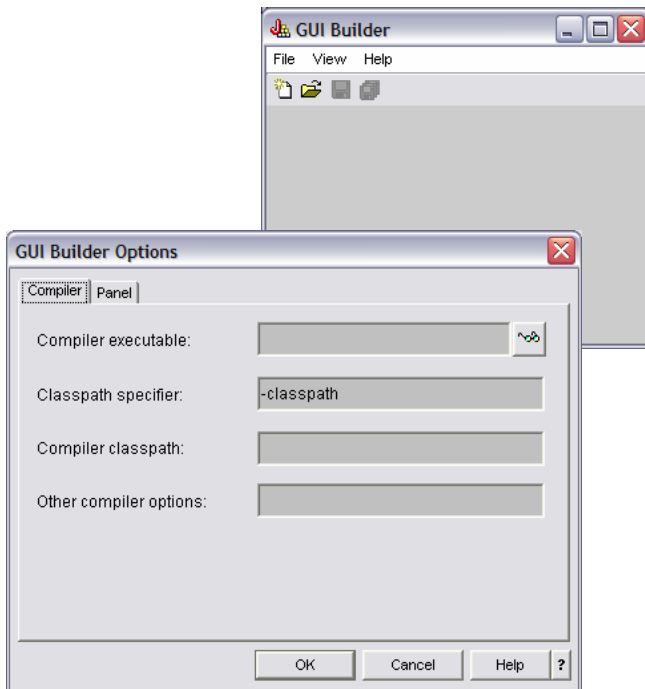
The GUI Builder is a WYSIWYG visual editor for creating Java dialogs, property sheets and wizards

➢ With the GUI Builder you can add, arrange, or edit user interface controls on a panel, and then preview the panel to verify the layout behaves the way you expected.

➢ The panel definitions you create can be used in dialogs, inserted within property sheets and wizards, or arranged into splitter, deck, and tabbed panes.

➢ The GUI Builder also allows you to build menu bars, toolbars, and context menu definitions.

➢ You can also incorporate JavaHelp in your panels, including context sensitive help.

Resource Script Provider
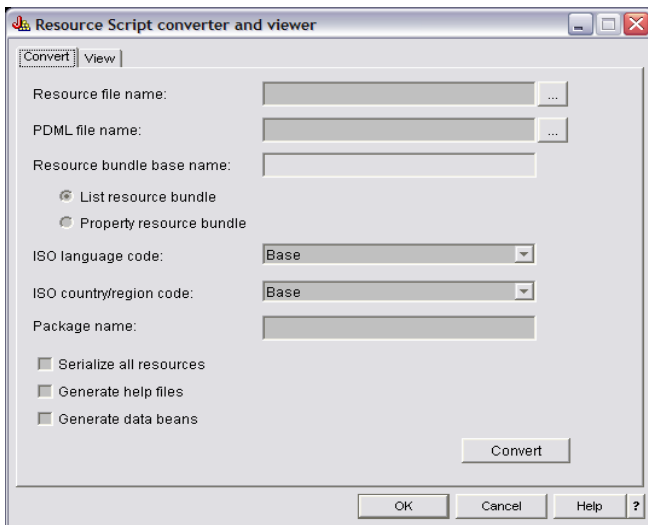
The Resource Script Converter converts Windows resource scripts into an XML representation that is usable by Java programs.

➤ With the Resource Script Converter you can process Windows resource scripts (RC files) from your existing Windows dialogs and menus.

➤ These converted files can then be edited with the GUI Builder. Property sheets and wizards can be made from RC files using the resource script converter along with the GUI Builder.

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