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IBM eServer J iSeries J

Session: 409159

iSeries Access for Windows Data Transfer: Advanced Topics

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IBM eServer iSeries

Session title: iSeries Access for Windows Data
                    Transfer: Advanced Topics

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Speakers: Schuman Shao
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Agenda

- Overview of Data Transfer
- Using the Data Transfer query builder
- Setting up "hands free" transfer requests
- Removing iSeries files
- Using the new Data Transfer ActiveX automations
- Using Data Transfer for e-business
- Data Transfer administration
- Other database options
- What's new
- Documentation

Topics that will not be covered in detail

- SQL specifics and SQL syntax
- The PC5250 emulator
- iSeries file systems
- Microsoft System Agent or Scheduler
- Microsoft Policy Editor
- iSeries Navigator Application Administration
- Using other methods to get to iSeries files
- HTML language

Overview of Data Transfer

Overview of Data Transfer

- Uses the iSeries database server to transfer data to and from DB2 database files and iSeries source physical files

- Provides an SQL-like interface to allow full file SELECT or customized queries including joins, sorting, and record grouping

- Capable of transferring data to and from many popular PC file types including ASCII Text, CSV, Excel types, Tab-Delimited Text, Lotus 123, and others

- Provides access to iSeries file members

- Transfers may be run interactively, in batch mode, programatically, or directly from Microsoft Excel

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Overview of Data Transfer

Network data flow model

network

Database Server

Database and Source Physical Files

iSeries Access

Data Transfer

PC Files

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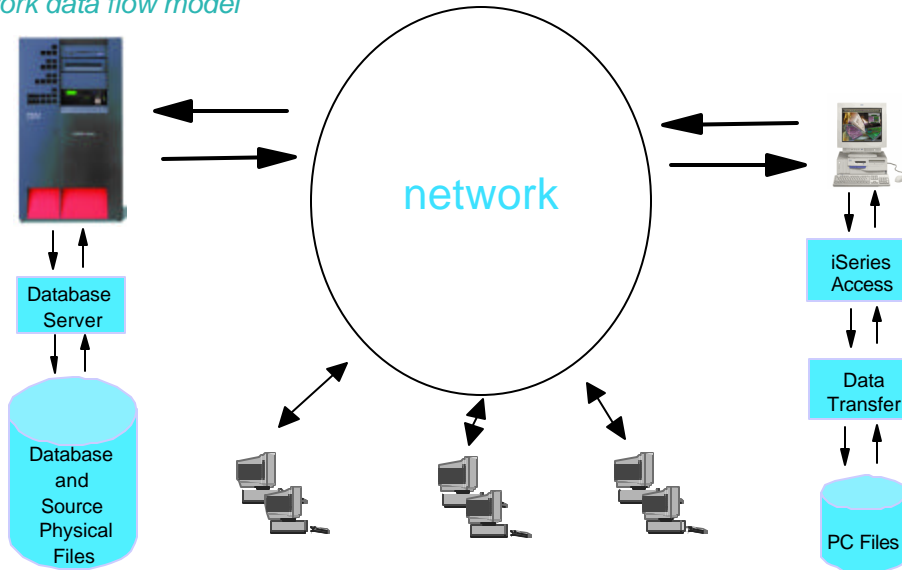
Overview of Data Transfer

Accessing other types of files on the iSeries

Data Transfer is limited to tranferring source physical files and data physical files to PC file types and PC file types to the source and data physical files on the iSeries. Transferring other types of files to and from a PC and the iSeries requires using other methods. Some other types of files that reside on the iSeries are stream files or flat files such as those stored in the Root or NetWare portions of the iSeries Integrated File System. These files may be accessed using the methods listed below.

- iSeries NetServer through 'shares'
- iSeries Navigator Integrated File System (IFS) support
- File Transfer Protocol (FTP)
- The IBM Toolbox for Java IFS classes
- iSeries Access for Web

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Anatomy of a Data Transfer

Anatomy of a Data Transfer

Data Transfer uses four basic components

- PC File
- An iSeries Database or Source Physical File
- File Description File (FDF)
- New or existing transfer request

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Anatomy of a Data Transfer
Component I: The PC File

A PC file is a standard "flat file" located on (or to be created on) your network or workstation.

Data Transfer supports many popular PC file formats
- ► Lotus 1-2-3 (.123) and Lotus 1-2-3 version 4 (.wk4)
- ► ASCII Text (.txt)
- ► Basic Random and Basic Sequential
- ► Microsoft Excel (BIFF) versions 3, 4, 5, 7, and 8 (.xls)
- ► Comma Separated Variable (.csv)
- ► Data Interchange Format (.dif)
- ► DOS Random, including type 2
- ► Tab Delimited Text (.txt)
- ► No Conversion (EBCDIC)
- ► Hypertext Markup Language (.htm, .html)

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Notes: Supported PC File types

Data Transfer supports many popular PC file formats when transferring data to or from the iSeries. However, some rules apply when performing a data transfer, especially uploading data to the iSeries.

Download
- ■ The PC file type to download to must be able to hold the data from the iSeries file. For example, downloading to a BIFF3 (Excel version 3) file limits character fields to 256 characters and only allows 16,385 rows in a spreadsheet.

Upload
- ■ If uploading to an existing iSeries file, the format of the data in the PC file must match the format of the data in the iSeries file.
- ■ If the PC file has column names those names must match the names in the File Description File and the iSeries file.
- ■ The HTML file type is not supported for upload.
- ■ Uploading to a database file (table) requires that you have a File Description File (FDF) to match your PC file.
- ■ Uploading to a source physical file with a file type other than ASCII text will only send a the first column of data from the PC file. If more than one column exists in the PC file, you will get a message stating that extra data was found at the end of the file and will be truncated.

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Anatomy of a Data Transfer

Component II: An iSeries Database or Source Physical File

Transferring data to or from the iSeries requires you to specify either a database table(s) or source physical file. Each of these file types may contain multiple members.

Database File

An iSeries file in the form of a relational table. It has a specific layout composed of various types of columns with various lengths.

Source Physical File

An iSeries file that contains 3 columns. A SRCSEQ, SRCDAT, and SRCDTA column. The first column is a sequence number. The second column is a date, and the last column contains your data. The first two columns are six bytes each, and the last column may be variable length.

Anatomy of a Data Transfer

Component III: The File Description File (FDF)

A file description file (FDF) is a PC file used to describe a PC file that contains data. A file description file is required when transferring data to a database file on the iSeries.

An example file description file:

PCFDF

PCFT 19

PCFO 1,1,1,1,1

PCFL Name 1 8

PCFL Address 1 13

PCFL Zip 2 6

PCFL Phone 1 8

PCFL Balance 2 8/2

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Notes: The File Description File (FDF)

The PC File Description File (FDF) contains various record types.

The first line of an FDF file must contain **PCFDF**. This line indicates that the file is an FDF.

The next line of the file, **PCFT**, indicates the PC file type. File type 19 signifies an FDF for use with the Lotus 123 Version 9 file type. Values for other file types are as follows:

ASCII Text = 1	Dos Random = 2	BasicSequential = 3	Basic Random = 4
DIF = 5	No Conversion = 6	Dos Random = 7	Dos Random Type 2 = 8
BIFF 4 = 9	BIFF3 = 10	BIFF5 = 11	CSV = 12
Lotus WK4 = 13	Tab Delimited Text = 14	BIFF7 = 15	BIFF8 = 16
Lotus 123 = 17	Excel Add-in = 18	Lotus 123 Version 9 = 19	

The **PCFO** line indicates PC file options. These options include date and time formatting and the decimal separator to use.

The **PCFL** lines contain the fields of the PC file. These are in order, top to bottom, listing fields in the PC file. The first column is the field name, for example, Address, the next column is the data type, and the final column is the length. The most common data types are '1' for character and '2' for numeric. The third column may contain two numbers separated by a '/'. This indicates that the field has numeric scale.

Anatomy of a Data Transfer

Component IV: The Transfer request

What is a transfer request?

A transfer request is a PC file created by and used with Data Transfer for storing options and settings for the transferring of data to or from the iSeries.

Some of the items stored in a transfer request include:

- iSeries system name
- iSeries file name(s)
- PC file name
- PC File Description File name
- PC file type

Anatomy of a Data Transfer

Supported transfer request file types

Data Transfer From iSeries
- .DTF - New request type used in Client Access Express
- .TTO - Request type used in XD1 and DOS Extended clients
- .DT - Request type used in Windows 3.1 client
- .RTO - Rumba transfer request file
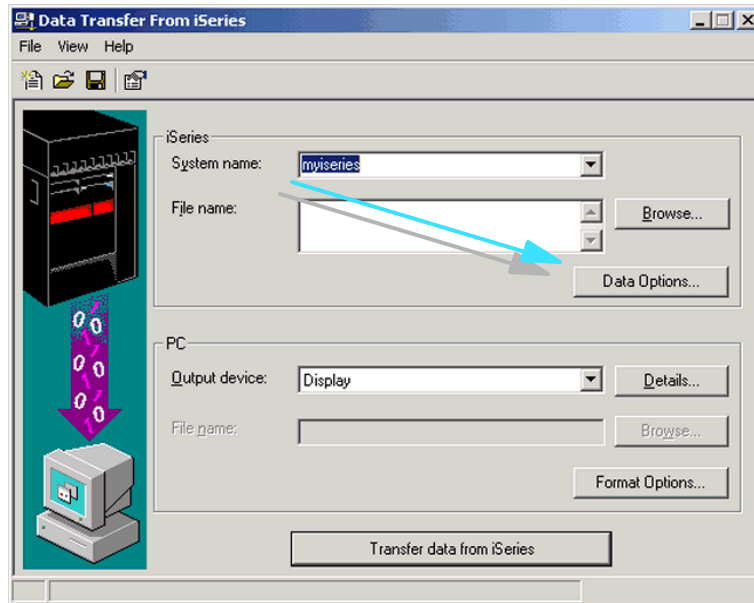
Data Transfer To iSeries
- .DTT - New request type used in Client Access Express
- .TFR - Request type used in XD1 and DOS Extended clients
- .DT - Request type used in Windows 3.1 client
- .RTO - Rumba transfer request file

The Data Transfer Query Builder

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The Data Transfer Query Builder

Type in or browse for the name(s) of your iSeries files and click the Data Options button to start the query builder.
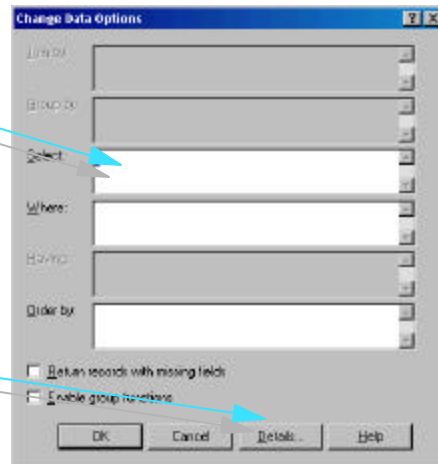
Data Transfer From iSeries

File View Help

iSeries
System name: myiseries
File name:
Browse...
Data Options...

PC
Output device: Display
Details...
File name:
Browse...
Format Options...

Transfer data from iSeries

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The Data Transfer Query Builder

Setting up a query

Enter "SQL-like" statements directly into the edit panels

OR

Click on Details... to bring up the Data Transfer query builder

Change Data Options

Join by
Group by
Select
Where:
Having
Order by

☐ Return records with missing fields
☐ Enable group functions

OK   Cancel   Details...   Help

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Notes: Using the Change Data Options panel to setup a query

The change data options panel is an interface for manually entering or modifying an SQL-like query. This panel consists of the following fields and options:

- Join by - Allows a join condition to be specified if multiple files are entered on the main interface.
- Group by - Allows records to be grouped or summarized by field. Enabled if 'Enable group functions' is selected.
- Select - Allows either full field selection using * or selection by field name.
- Where - Allows conditions to be placed on which records are selected for data transfer.
- Having - Allows conditions for records which are grouped (summarized).
- Order by - Allows records to be ordered by field, either ascending or descending.
- Return records with missing fields - Indicates whether or not to return records from a multiple file join when fields in the second file do not match the first because they are empty.
- Enable group functions - Enables the Group by and Having options.

Select the Details... button to bring up an interface for simplifying query building.

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The Data Transfer Query Builder
Select fields to transfer from the iSeries

Double click on field names in the field list to add them to the Select clause.

Functions such as SUM may also be used to return functional results

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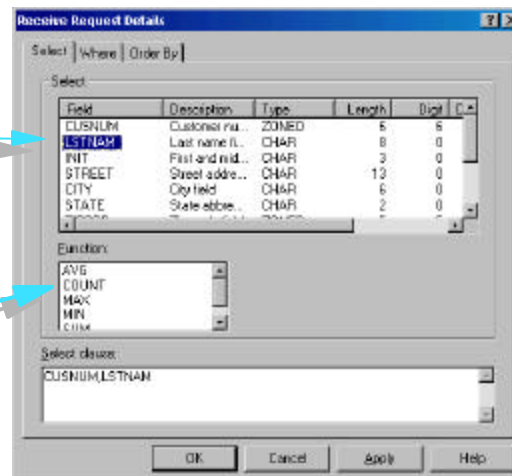
Notes: Using the Select function

The select function allows the selection of specific fields from those files selected to transfer from the iSeries. Double clicking on the field names in the list of available fields will place that field in the list of fields to be transferred. Clicking on the list column headings will sort the field listing by name, description, type, length, etc.

If multiple files were specified to be transferred from the iSeries field names will be preceded with T1, T2, T3, ... and so on. T1 indicates that the field is from the first table (file), T2 the second.

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The Data Transfer Query Builder
Creating a where clause

Specify conditions on data transferred from the iSeries by building a where clause. Double click on a field name or specify a function, then specify a test condition by double clicking on a test operator. Enter the right side of the comparison in the comparison dialog.

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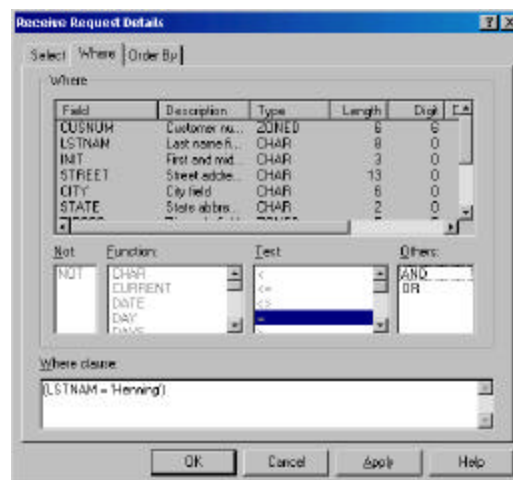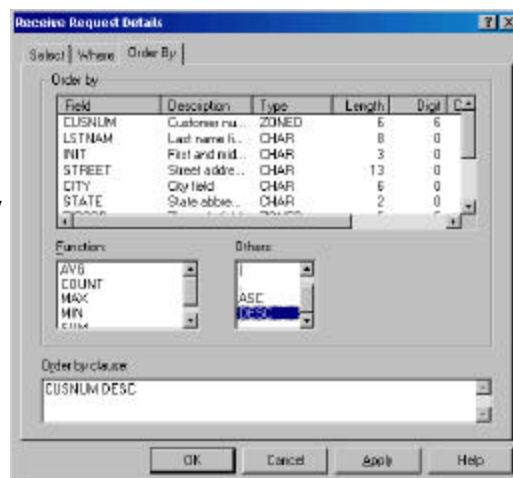
Notes: Using the Where function

The where function allows for SQL-like conditions to be included in the query. When the query is run only those records that meet those conditions will be transferred from the iSeries.

Conditional statements are created by double clicking on items on the Where page in sequence. For example, to select all customers with a last name of Henning from QIWS/QCUSTCDT double click on LSTNAM, then select the Test operator '='. A compare dialog will display. Enter 'Henning', including the single quotes, into the edit field and click OK. To enter additional conditions double click on either AND or OR, depending which operator applies, and then build another condition. You can also edit the statement by changing the generated text in the 'Where clause' field. Knowledge of SQL becomes a necessity as queries become more complex.

The Data Transfer Query Builder

Ordering data

An order by clause may be specified to order data transferred from the iSeries. Fields may be ordered in ascending or decending order by specifying either ASC or DESC after each field name. Currently, on the iSeries, fields used in the order by must also exist in the Select clause.

Notes: Using the Order by function

The Order By function allows resulting data to be ordered by fields, in either ascending or descending order. Multiple fields can be specified for sort order. If multiple sort fields are specified data will be sorted by these fields in the order that they are chosen.

The Data Transfer Query Builder
Multi-file joins

When multiple files are specified for download on the main Data Transfer panel, a join clause may be built to conditionally join records across multiple files.
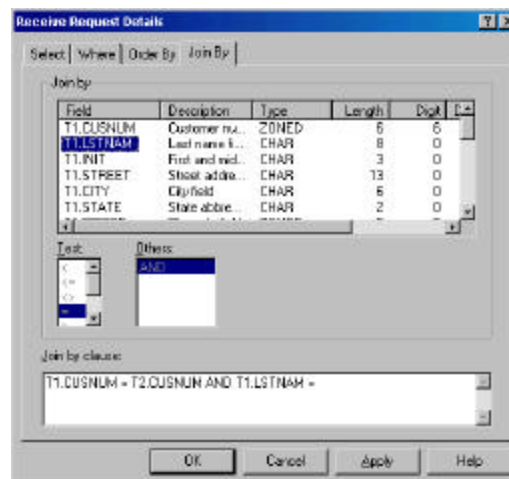
Notes: Using the Join By function

The Join By function is available if two or more files were specified for download on the main Data Transfer application panel. This page allows a join condition to be specified for the files to be joined. The join will be outer join if 'Return records with missing fields' is checked on the Change Data Options panel and will be an inner join if is not checked.

If multiple files are selected for download and a join condition is not specified the resulting operation will be a cross join, where the resulting data will contain a row for each row from the file to the left concatenated with with each fow from the file to the right.

The Data Transfer Query Builder
Record grouping

If group by functions are enabled on the Data Options panel, a group by statement may be specified to group records returned by Data Transfer from iSeries.

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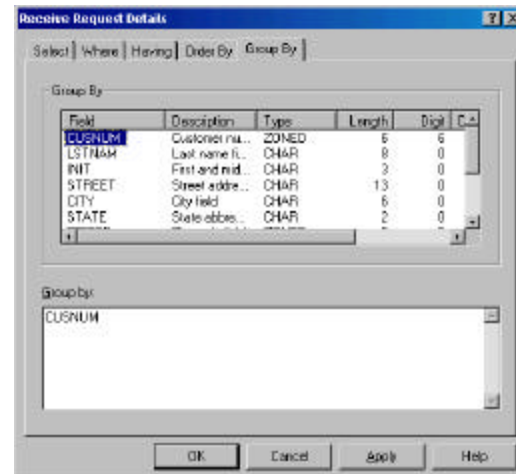
Notes: Using the Group by Option

The Group By option is available if the 'Enable group functions' box is checked on the Change Data Options panel. Group By allows records to be grouped by specified fields. Proper use of the Group By function requires a fairly thorough understanding of SQL.

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The Data Transfer Query Builder
Conditional grouping using Having

Conditional record grouping from a Group By operation may be done by specifying a Having clause.
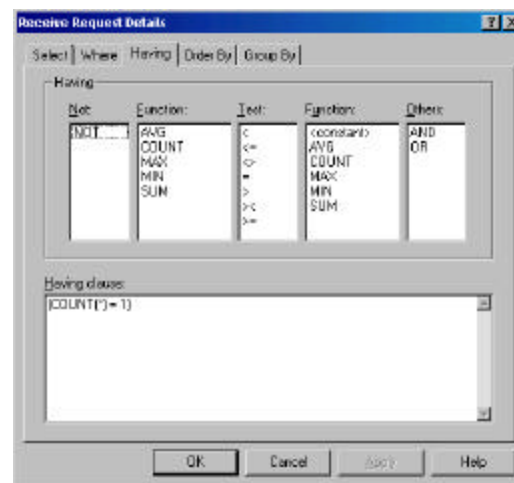

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Notes: Using the Having option

The Having option is available if the 'Enable group functions' box is checked on the Change Data Options panel. Having allows conditions to be placed on the data returned by the Group By operation. Proper use of the Having and Group By options require a fairly thorough understanding of SQL.

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Using Native SQL

The Data Transfer Query Builder

Activating the Native SQL Interface

A Native SQL interface is provided for power users or for situations where the Data Transfer format does not provide enough functionality

Data Transfer From iSeries

File View Help

Properties

| Conversions | Library List | Display | SQL | Connection | Startup |

SQL options

○ Process SELECT as Data Transfer format
⦿ Process SELECT as native SQL

[OK] [Cancel] [Apply] [Help]

The Data Transfer Query Builder

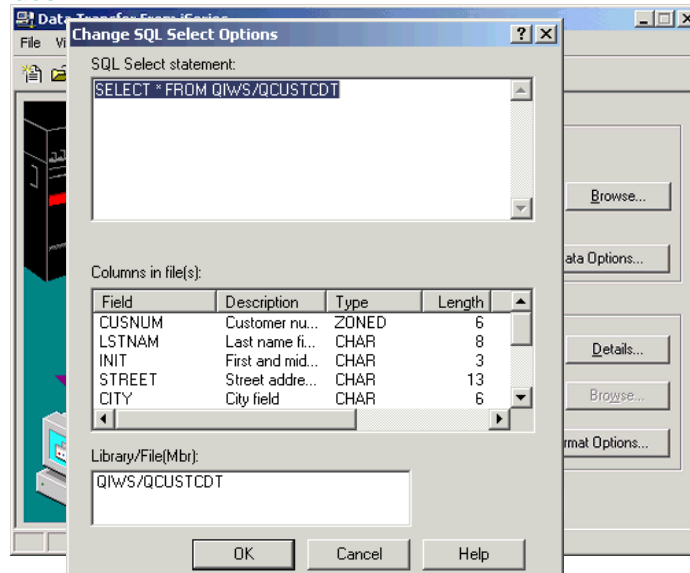*Finding the Native SQL Interface*

After choosing to process your statement as Native SQL, the Data Options button activates a Native SQL panel

Data Transfer From iSeries

File View Help

iSeries

System name: myiseries

File name: [   ] Browse...

Data Options...

PC

Output device: Display   Details...

File name: [   ]   Browse...

Format Options...

Transfer data from iSeries

The Data Transfer Query Builder

Using the Native SQL Interface

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

Change SQL Select Options

SQL Select statement:

`SELECT * FROM QIWS/QCUSTCDT`

Columns in file(s):

Field	Description	Type	Length
CUSNUM	Customer nu...	ZONED	6
LSTNAM	Last name fi...	CHAR	8
INIT	First and mid...	CHAR	3
STREET	Street addre...	CHAR	13
CITY	City field	CHAR	6

Library/File(Mbr):

`QIWS/QCUSTCDT`

OK   Cancel   Help

Browse...
ata Options...
Details...
Browse...
rmat Options...

Notes: Using the Native SQL Interface

The Native SQL interface was initially provided as a work around for a deficiency in Data Transfer. This dificiency is that Data Transfer does not support 3 or more file outer joins. By default, joins are inner joins. This means that records containing null column values are discarded when the join occurs. An outer join includes these records in the join. With 3 or more files, Data Transfer cannot properly build an outer join statement that produces the correct results.

Here is a simple example of a SQL multiple file outer join that can be created with the Native SQL interface:

SELECT * FROM QIWS/QCUSTCDT LEFT OUTER JOIN TESTLIB/TESTJOIN ON
                QCUSTCDT.LSTNAM = TESTJOIN.MYNAME
         LEFT OUTER JOIN TESTLIB/TESTJOIN2 ON
                TESTJOIN.BALDUE = TESTJOIN2.BALANCE

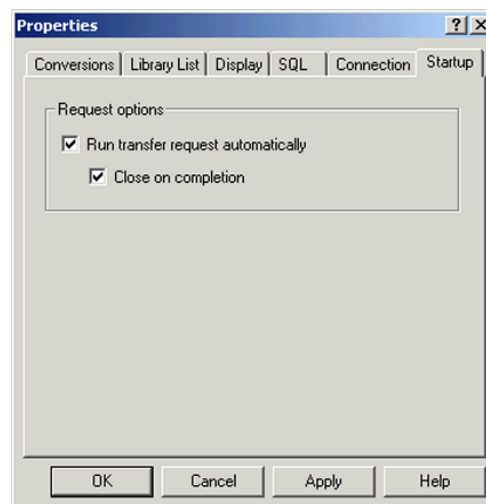The Native interface can be used to run any valid SELECT statement.

Setting Up "hands free" Transfer Requests

Setting up "hands free" transfer requests

Auto-run/Auto-close support

Request options
- ▶ Allow transfer requests to run automatically when opened
- ▶ Allow transfer requests to close after the transfer has completed
- ▶ Using both options allow for transfer requests to run without user intervention

Properties ? X

Conversions | Library List | Display | SQL | Connection | Startup

Request options
- ☑ Run transfer request automatically
  - ☑ Close on completion

OK   Cancel   Apply   Help

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Notes: Auto-run/Auto-close support

The Auto-Run Startup options control how a transfer request will be run if started from a shortcut, Start command, or Windows Explorer. The startup options have no effect when a transfer request is loaded from the File-Open menu in Data Transfer.

The main option controls if you want the transfer to run when the request is opened. The secondary option allows you to control if the request closes upon completion.

If both options are selected, this is considered to be an auto-start or auto-run request. With the set of policies that have been added, administrators can allow users to only run auto-start requests. By doing this, users would not be able to change and perhaps corrupt their transfer requests.
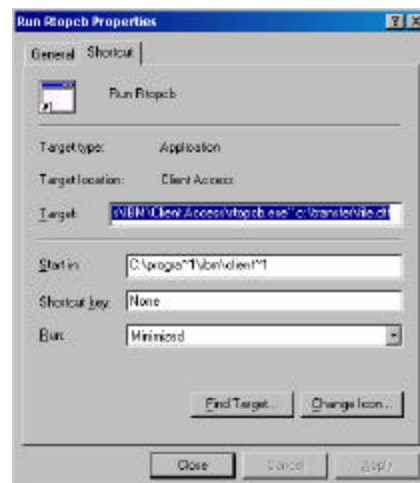

Setting up "hands free" transfer requests
Shortcuts to the Data Transfer command line interface

Data Transfer may also be run by setting up a shortcut to execute the RTOPCB and RFROMPCB batch commands

To create a new shortcut
- ▶ Right click on an open area on the desktop
- ▶ Select New -> Shortcut
- ▶ Find and select the RTOPCB or RFROMPCB command in the Client Access Folder
- ▶ Name the shortcut
- ▶ Right click on the new shortcut and select properties from the menu
- ▶ Add the full path of the transfer request to run after the command
- ▶ Select to run minimized

Setting up "hands free" transfer requests

Using a job scheduler

The Data Transfer batch interface commands may be used within a job scheduler to execute transfers at a specific interval

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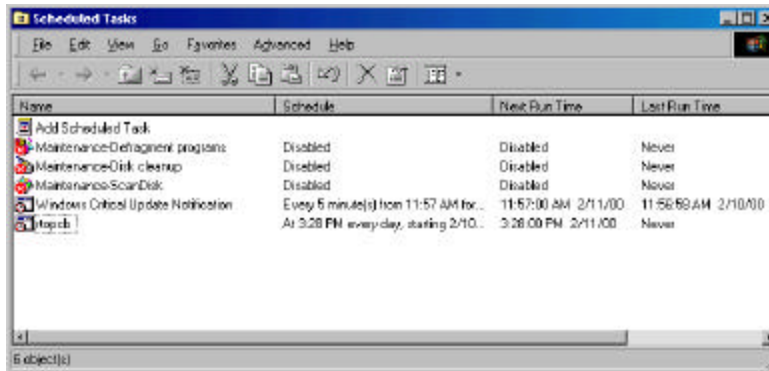
Notes: Using a scheduler

iSeries Access for Windows does not provide a scheduler program. For an example of how to schedule a Data Transfer request, we picked Microsoft's Task Scheduler application.

From Microsoft Task Scheduler select Add Scheduled Task. Go through the wizard to create the scheduled task and enter

"C:\Program Files\IBM\Client Access\RTOPCB.EXE" your.DTF

for the task to execute. your.DTF is the name of your stored transfer request to execute and RTOPCB is the data transfer command line application for running transfer requests.

Complete the other scheduling options offered by the System Agent application. You are now ready to run transfer requests on a scheduled basis.

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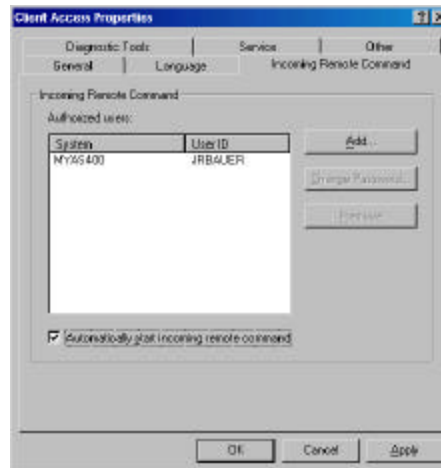# Setting up "hands free" transfer requests

Remote command from the iSeries

Data Transfers may be executed remotely from an iSeries using Incoming Remote Command

The Data Transfer commands may be executed on a PC from the iSeries to do remote data transfers

- ► Issue RUNRMTCMD on the iSeries
- ► Specify the PC name, user ID, and password
- ► Specify the name of the command to run (RTOPCB, RFROMPCB, CWBTF, or a batch file containing these commands) on the PC.

Note: This screen is only available on Windows 9x. For Windows NT/2K/XP this function is controlled under system services.

Client Access Properties

| Diagnostic Tools | Service | Other |
| General | Language | Incoming Remote Command |

Incoming Remote Command

Authorized users:

System	User ID
MYAS400	JRBAUER

Add...

Change Password...

Remove

☑ Automatically start incoming remote command

OK   Cancel   Apply

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Removing Files from the iSeries

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Removing files from the iSeries

Overview

Data Transfer supports creating new iSeries files and members, replacing data in members, and appending to members, but it currently does not support removing (deleting) files on the iSeries. Other iSeries Access for Windows functions must be used to remove files from the iSeries.

- Remote Command from the PC
- Using a PC5250 emulation session
- Using iSeries Navigator Database functions

Removing files from the iSeries

Remote Command From the PC

Files may be removed on the iSeries by issuing a remote command on the PC. The RMTCMD PC command sends a command to the iSeries to be executed on the iSeries.

The PC command RMTCMD.EXE is located in the windows folder on your PC.

Remote Command Server

DASD

file1

RMTCMD DLTF FILE(LIB1/FILE1) //myiseries

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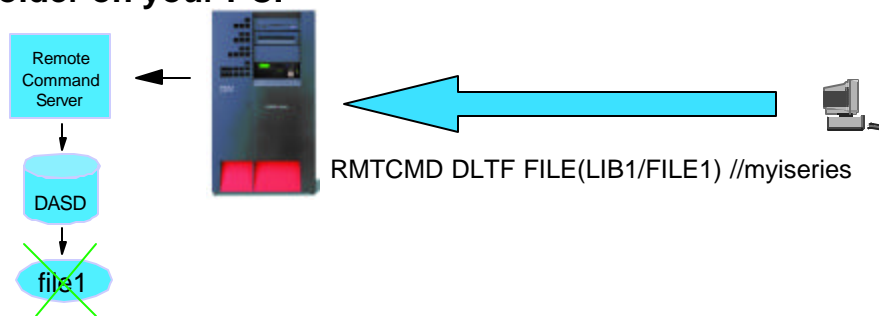
Removing files from the iSeries

Using a PC5250 Emulation Session

Files may be removed on the iSeries by starting a PC5250 session. After signing on to the iSeries issue the DLTF command to delete the file from your iSeries.

Telnet Server

DASD

file1

DLTF FILE(LIB1/FILE1)

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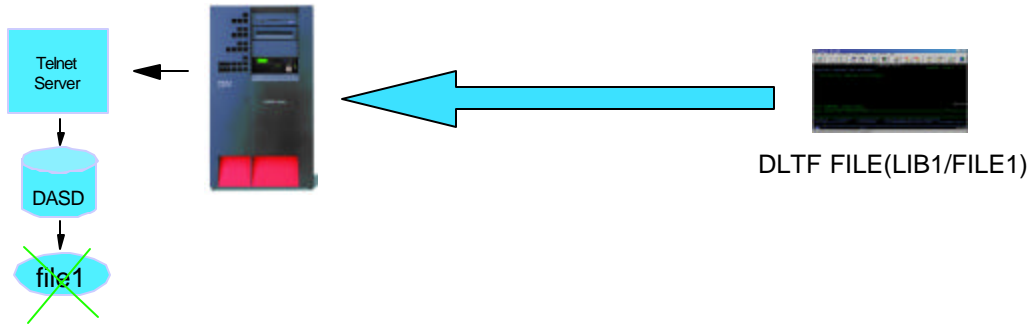
Removing files from the iSeries

Using iSeries Navigator Database functions

Files may be removed on the iSeries by using the Database function under iSeries Navigator. Right click on the file/table and select Delete...

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Data Transfer ActiveX Automation Objects

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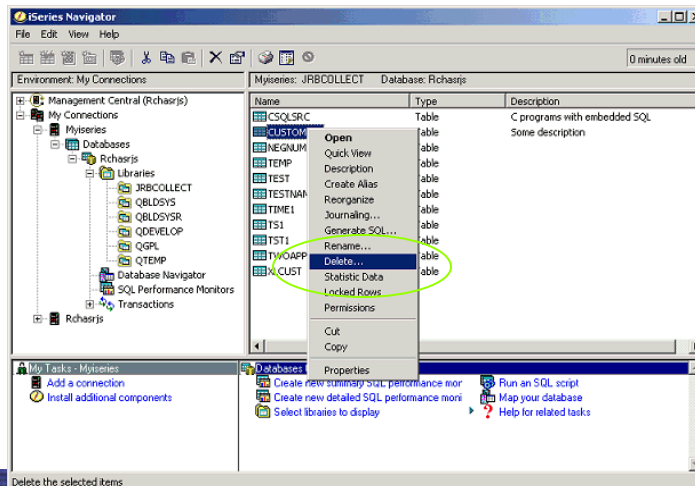
Data Transfer ActiveX Automation Objects
ActiveX? Automation Objects? So what's this? What can they do for me?

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 similiarly 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.

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Data Transfer ActiveX Automation Objects

So 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

OK, how do I use them?

- 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
    - ► LotusScript
    - ► 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.

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Data Transfer ActiveX Automation Objects
What Automations are available for Data Transfer?

- Two types of ActiveX Automations for Data Transfer
  - ► High Level Automations
  - ► Low Level Automations
- Labeled based on functionality and ease of use

Data Transfer ActiveX Automation Objects
High Level Automations

Easier to use, but limited functionality!

With the high level automations you can run a Data Transfer with as little as 2 lines of code!

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Data Transfer ActiveX Automation Objects
The High Level Automation Object

The name of this object is **DatabaseTransfer**

The DatabaseTransfer object can be used to run a simple upload,
download, or an existing transfer request file!

Data Transfer ActiveX Automation Objects
Using the DatabaseTransfer Object

These two lines of Visual Basic (VB) code can be used to run a
download:

```
Dim dt As New cwbx.DatabaseTransfer
dt.Download "mysys", "qiws/qcustcdt", "c:\myfile.xls", cwbdtBIFF5
```

To do an upload:

```
dt.Upload "mysys", "cwbxtest/qcustcdt", "c:\qcustcdt.txt", "c:\qcustcdt.fdf"
```

To run a saved request:

```
dt.Transfer "c:\qcustlst.dtf"
```

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Data Transfer ActiveX Automation Objects
Using the DatabaseTransfer Object

The DatabaseTransfer automation object also contains properties you can query or set for the transfer request.

- **Errors** - for query only. A standard collection of error messages. Messages get put into this collection while the request is running
- **Password** - Allows you to set the password for the iSeries connection necessary for the transfer
- **TransferResults** - Allow you to get the number of rows transferred, return codes, and error and warning locations.
- **UserID** - Allows you to set the user ID to use for this transfer request.

Data Transfer ActiveX Automation Objects
The Low Level Automation Objects

- There are two main Low Level Objects:
  - ► DatabaseDownloadRequest
  - ► DatabaseUploadRequest
- Various properties must be set on these objects to perform an upload or download
- Used with other Client Access Express Automation objects.

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Data Transfer ActiveX Automation Objects

Using the DatabaseDownloadRequest Object

The DatabaseDownloadRequest object can be used to programmatically perform a download from the iSeries to a PC workstation. It contains 5 additional objects that may be set to perform a download. Each of these objects has various settings.

- **DatabaseAS400File** - Stores the name of the file or files to download.
- **DatabaseDownloadPCFile** - Stores the name of the PC file to download, plus file options.
- **DatabaseQuerySettings** - Query settings for the download.
- **DatabaseFormatOptions** - Data/time format options.
- **DatabaseUserLibraryList** - A list of libraries to use with the request.

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Data Transfer ActiveX Automation Objects

DatabaseDownload Request Object Methods

The DatabaseDownloadRequest object has several methods to perform various tasks:

- **Download** - Run the configured download
- **DownloadAsync** - Runs the configured download asynchronously
- **LoadRequest** - Used to load a stored download request
- **SaveRequest** - Used to save the current request

- **Cancel** - Cancels a running Async request

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Data Transfer ActiveX Automation Objects

A simple Visual Basic program to run a download using the low level DatabaseDownloadRequest object:

```
Dim dlr As New cwbx.DatabaseDownloadRequest
Dim myiSeries As New cwbx.AS400System
myiSeries.Define "mysys"
myiSeries.UserID = "myUserID"
myiSeries.Password = "myPassword"
Set dlr.System = myiSeries
dlr.AS400File = "qiws/qcustcdt"
dlr.pcFile = "c:\myfile"
dlr.pcFile.FileType = cwbdtBIFF8
dlr.Download
```

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Data Transfer ActiveX Automation Objects

Using the DatabaseUploadRequest Object

The DatabaseUploadRequest object can be used to programmatically perform an upload to the iSeries from a PC workstation. It contains 3 additional objects that may be set to perform an upload:

- **DatabaseAS400File** - Stores the name of the file or files to download.
- **DatabaseUploadPCFile** - Stores the name of the PC file to upload, plus file options.
- **DatabaseUserLibraryList** - A list of libraries to use with the request.

Data Transfer ActiveX Automation Objects

DatabaseUploadRequest Object Methods

The DatabaseDownloadRequest object has several methods to perform various tasks:

- **Upload** - Run the configured upload
- **UploadAsync** - Runs the configured upload asynchronously
- **LoadRequest** - Used to load a stored upload request
- **SaveRequest** - Used to save the current upload request
- **Cancel** - Cancels a running Async request

Data Transfer ActiveX Automation Objects

Asynchronous Methods

The DatabaseDownloadRequest and DatabaseUploadRequest objects have asynchronous capabilities. This means the upload or download request can run "In the background" while program execution continues. A running Async request may also be cancelled by the main program.

The **UploadAsync** and **DownloadAsync** methods also pass events back to the running program. These events are:

- **StatusChanged** - Indicates that something has changed, like the request has completed, or there was an error, or a specific number of rows has been transferred.
- **UploadComplete** - Indicates that an upload completed
- **DownloadComplete** - Indicates that a download completed
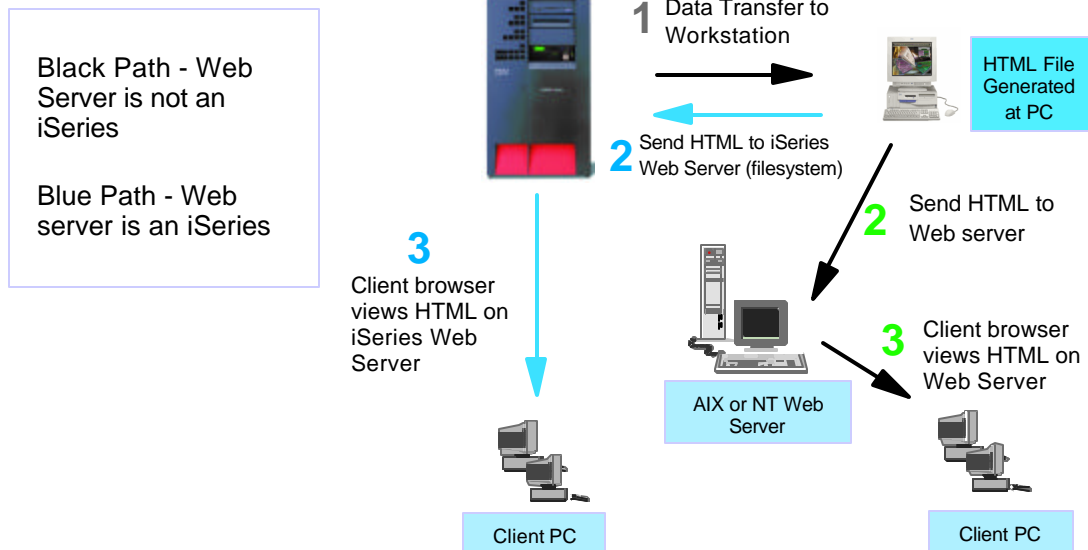
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More information

Additional Information on the iSeries Access for Windows ActiveX automation objects can be found in the iSeries Access for Windows Toolkit.

This information can be found under the ActiveX section of the Database portion of the Toolkit documentation.

Using Data Transfer for e-business

Using Data Transfer for e-business

HTML File support - Updating a web server

Black Path - Web Server is not an iSeries

Blue Path - Web server is an iSeries

1 Data Transfer to Workstation

HTML File Generated at PC

2 Send HTML to iSeries Web Server (filesystem)

2 Send HTML to Web server

3 Client browser views HTML on iSeries Web Server

3 Client browser views HTML on Web Server

AIX or NT Web Server

Client PC

Client PC

Using Data Transfer for e-business

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

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

☑ Use HTML template file

Template file:
c:\transfer\template.htm   Browse...

Embedded template tag:
<!-- TABLE1 -->

OK   Cancel   Apply   Help

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Using Data Transfer for e-business

Using HTML Template Files

Sample HTML "template" file

<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.

Using Data Transfer for e-business

Datalink data type support

In Data Transfer, the new DB2/UDB Datalink type is supported. Transferring the Datalink type to a Data Transfer HTML file will produce active links within your HTML File.

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

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Using Data Transfer for e-business
Movement of data

Data Transfer may be used as an data utility in e-business processes.

- May be used to upload gathered transactions to the iSeries from a PC server acting as the e-business interface.
- May be used by CGI programs on the PC Server to build standard PC files which may then be sent to customers through the web.
- May be used to generate HTML files to be published on a web server.
- ActiveX objects may be used in 3-tier to run data transfer from a Windows Web Server.
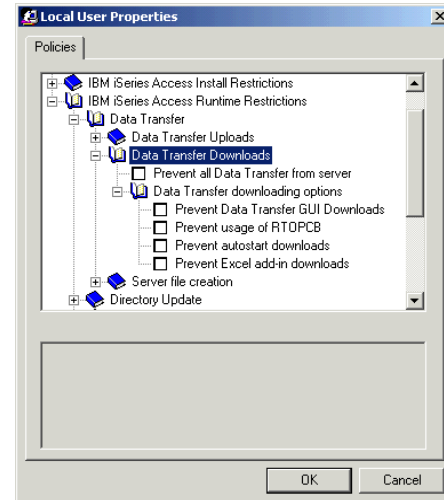
Data Transfer Administration

How can I control data transfers?

Controlling Data Transfer

Microsoft System 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.
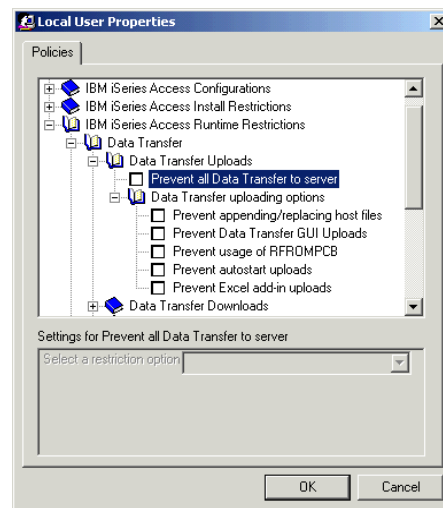
Local User Properties

Policies

- IBM iSeries Access Install Restrictions
- IBM iSeries Access Runtime Restrictions
  - Data Transfer
    - Data Transfer Uploads
    - 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

Controlling Data Transfers

Microsoft System Policies

- Data Transfer To iSeries - Limiting uploads
  - Prevent usage of Data Transfer To iSeries
  - Prevent appending to/replacing host files
  - Prevent usage of Data Transfer GUI
  - Prevent usage of RFROMPCB command
  - Prevent autostart uploads
- Limiting users to only autostart uploads will help to prevent them from modifying transfer requests and keep them from using Data Transfer in potentially harmful ways.
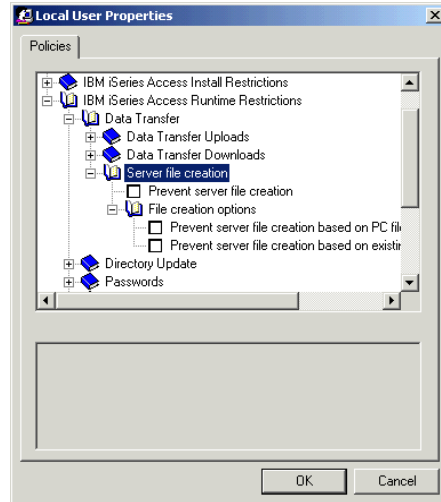
Local User Properties

Policies

- IBM iSeries Access Configurations
- IBM iSeries Access Install Restrictions
- IBM iSeries Access Runtime Restrictions
  - Data Transfer
    - Data Transfer Uploads
      - ☐ Prevent all Data Transfer to server
      - Data Transfer uploading options
        - ☐ Prevent appending/replacing host files
        - ☐ Prevent Data Transfer GUI Uploads
        - ☐ Prevent usage of RFROMPCB
        - ☐ Prevent autostart uploads
        - ☐ Prevent Excel add-in uploads
    - Data Transfer Downloads

Settings for Prevent all Data Transfer to server

Select a restriction option

OK   Cancel

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Controlling Data Transfers

Microsoft System Policies

- Data Transfer To iSeries - iSeries server file creation
  - ► Prevent creation of new files on the iSeries
  - ► Prevent creation of files via the Data Transfer Create iSeries Database File wizard
  - ► Prevent creation of files via the standard "created based on" or Field Reference File method.

Local User Properties

Policies

- IBM iSeries Access Install Restrictions
- IBM iSeries Access Runtime Restrictions
  - Data Transfer
    - Data Transfer Uploads
    - Data Transfer Downloads
    - Server file creation
      - ☐ Prevent server file creation
      - File creation options
        - ☐ Prevent server file creation based on PC file
        - ☐ Prevent server file creation based on existi
  - Directory Update
  - Passwords

OK   Cancel

Notes: Data Transfer Policy Support

If a policy prohibits use of the function, an error message will be displayed and the application will exit.

Starting in V4R4M0, additional policies were added to control the following items. These items are also controllable by the iSeries Navigator Application Administration function.

Here is an abbreviated list of controllable functions:

- Data Transfer and RFROMPCB/ RTOPCB can be controlled via policies.
- All Data Transfer downloads to the PC
- All Data Transfer uploads to the iSeries
- Host file creation
- Append To/Replace existing host files
- ActiveX objects

Controlling Data Transfers

⚡ *iSeries Navigator Application Administration*
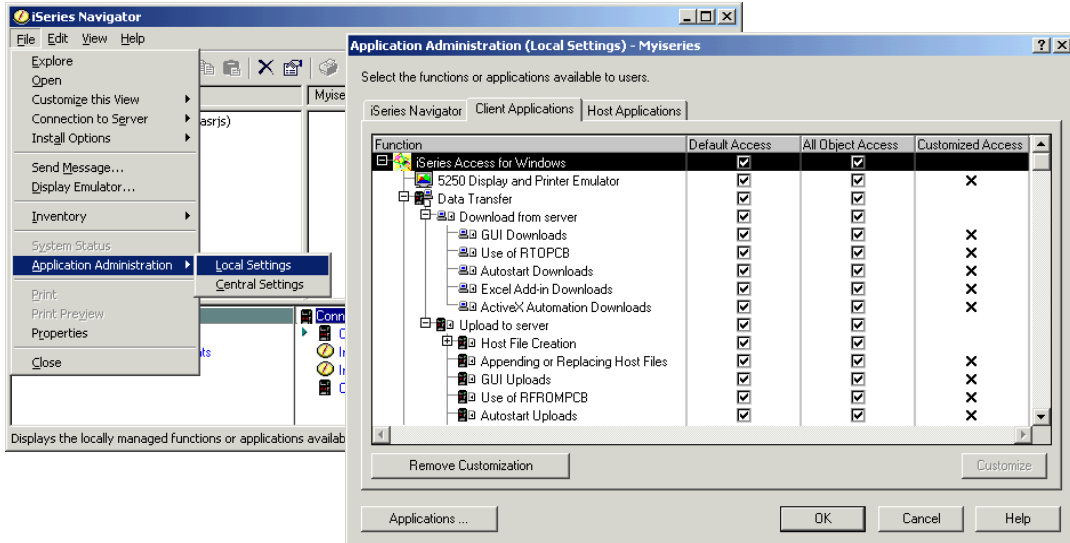
Controlling Data Transfers

⚡ *iSeries Navigator Application Administration*

- Application Administration
  - ▶ Provides similar capabilities as Microsoft PC based policies
  - ▶ Administration information is stored on the iSeries
  - ▶ Data Transfer options are stored on a per user/per iSeries basis
  - ▶ Works with OS/400 V4R3 and above
  - ▶ Customize user access to Data Transfer functions

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Notes: Application Administration

All of the PC based policy options available through Data Transfer Policy support are also available through the Application Administration function of iSeries Navigator. Unlike PC based policies, Application Administration settings reside on the iSeries server and are based on iSeries object authority.

To access Application Administration, select an iSeries system in iSeries Navigator and select Application Administration from the File menu.

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Controlling Data Transfers
iSeries host server exit programs

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

Note: Data Transfer and ODBC use the same server for database access. Currently, exit programs created for Data Transfer are also active for ODBC users.

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Other data access options

What are my other options?

More Client Database Options...

- ODBC/JDBC
- ADO/OLE DB Provider
- DB API
- iSeries Navigator - Database
- Java Toolkit
- iSeries Access for Web

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References

Additional Documentation & Information

More information...

- iSeries Access for Windows Web Site -
  www.ibm.com/eserver/iseries/access/
  - Technical Studio
  - Information APARs
- iSeries Access for Windows User's Guide
  - Found in iSeries Access for Windows folder
- Client Access Express for Windows Redbook
  - SG24-5191-00
  - http://www.redbooks.ibm.com

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What's new?

## What's New in Data Transfer (V5R1 and later)

- Option to upload directly from Excel to the iSeries via the Add-In

- Configurable signon information when connecting to the iSeries. This option is available on a per-request basis. V5R2 adds the option to use Kerberos authentication.

- Support for the Lotus 123 version 97 file type. V5R2 adds the Lotus 123 Version 9 file type.

- Support for the Microsoft Excel version 8.0 (BIFF8) file type. This type is used by Excel 97 and 2000.

- Support for 4 byte (float) and 8 byte (double) floating point data types.

- Support for the BIGINT data type. This data type is available in release V4R5 of OS/400.

- UTF-8 Character support for download to HTML

- ActiveX Automation objects to programmatically run data transfer through various programming interfaces including Visual Basic for Applications (used to write MS Office macros), Visual Basic, C++, Java, and other platforms that support ActiveX.

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