Documentation Library

Data Explorer

User Guide

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Welcome to Data Explorer

This document describes how to use aXes Data Explorer (referred to as DE).

DE provides query tools to retrieve data from databases on IBM i (System i, iSeries or AS/400) servers. Typical tasks are:

- Search for database tables using DE table filters
- Create queries with Structured Query Language (SQL)
- Run the queries to retrieve data from database tables
- Save the query definitions in folders ready for use again
- Download the data produced by queries to your computer or mobile device

Once you have downloaded or copied the query data, you can import the query data into business applications like Microsoft Excel and Word.

For information about aXes products, refer to the aXes web site www.axeslive.com.

Road Map

Use the road map to find information about Data Explorer.

If you want to...	Refer to...
Get started quickly	Section 1 - Getting started (with Data Explorer) Installation, starting DE and log on instructions.
Understand how to perform tasks from start to end	Section 2 - What do you want to do? This section is task oriented, describing what to do to complete a task. Later sections provide the detailed instructions explaining each step in a task.
Work with data produced by queries	Section 3 - Work with query data This section describes how to view data retrieved by running queries and how to download the data for import into office tools like Microsoft Excel.
Manage searches, filters and folders	Section 4 - Searches, filters and folders This section describes how to use searches, filters and folders.
Understand concepts behind Data Explorer	Section 5 - Concepts and configuration Conceptual information in this section describes how DE works, including the concepts of operation, designing queries, viewing the query results and options for controlling DE behaviour.
Read reference material	Appendices

For information about aXes Data Explorer server installation and administration refer to the aXes administration and reference guides.

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Section 1 - Getting started

Getting started with Data Explorer provides an overview of DE including an explanation of the page content, layout and what DE can do to help you query database tables.

Before you can use DE, your administrator must register your user identification.

This section describes how to install, start and log on to DE from your computer or mobile device.

What is Data Explorer?

DE is a Web application that you use to query database tables on an IBM i server. The DE page consists of two panes. The left-hand pane is the search filter and folder navigation pane. It contains filters used for table searches, queries and folders where you save the filters. The right hand pane consists of one or more tabs. The tabs contain table search results, query data, forms for editing queries and search criteria and setting options.

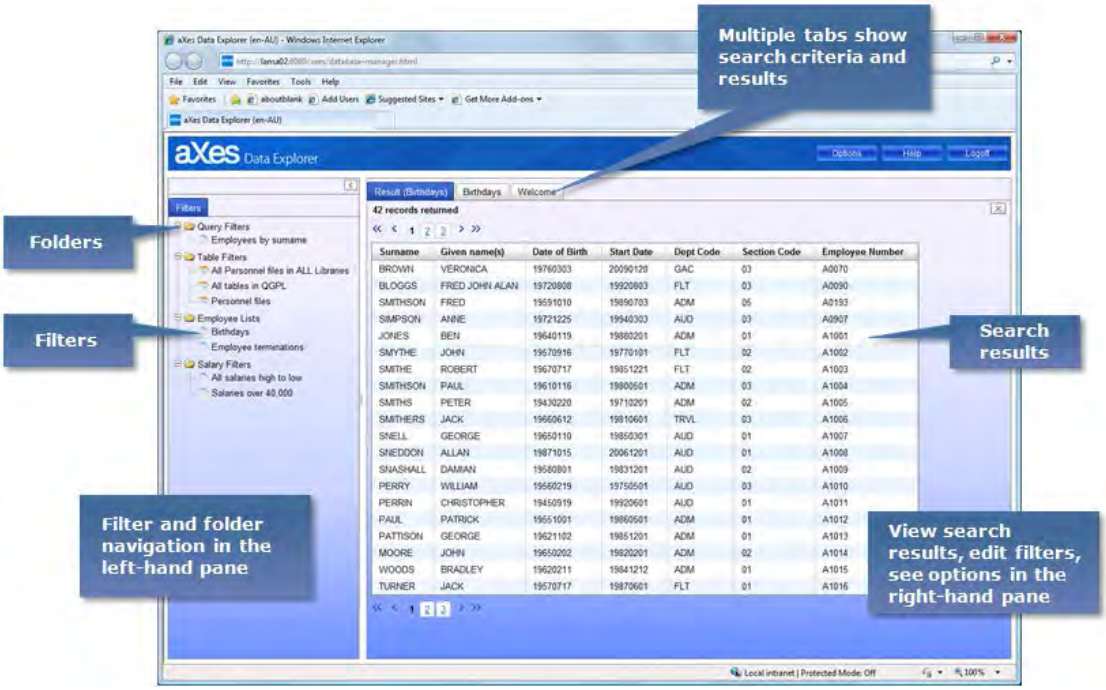


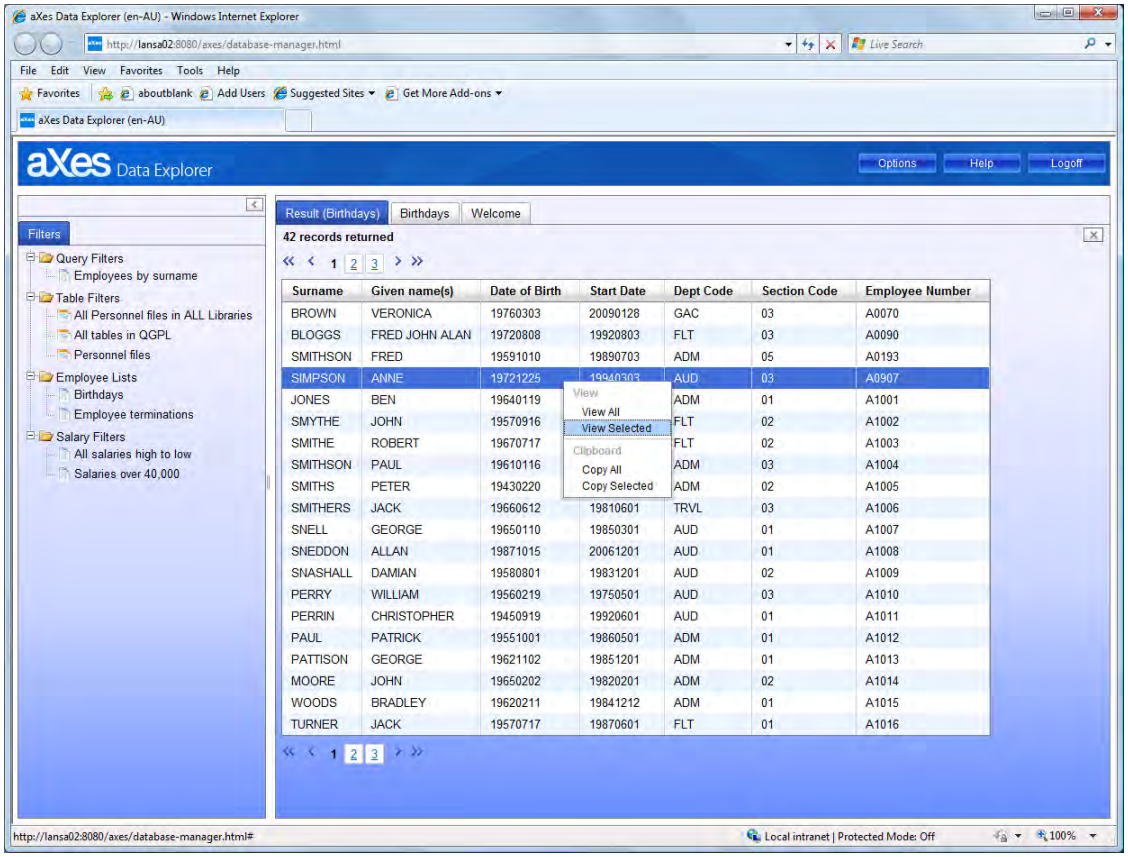
Figure 1: Data Explorer Screen Components and Layout

Figure 1 (page 9) shows three tabs in the right hand pane. The visible tab, labelled “Result (Birthdays)”, presents the query data obtained by running a query filter. The second tab (out of view) titled Birthdays is the edit tab for the query filter and the third tab is the Welcome page (also out of view).

Figure 2 (page 10) shows a floating menu with options for working with query data. The options are viewing all or selected rows in the query data and copying all or selected rows.

Positioning the mouse pointer on a row in the list selects the row. Hold the Ctrl key and click on rows with the left mouse button to select multiple rows.

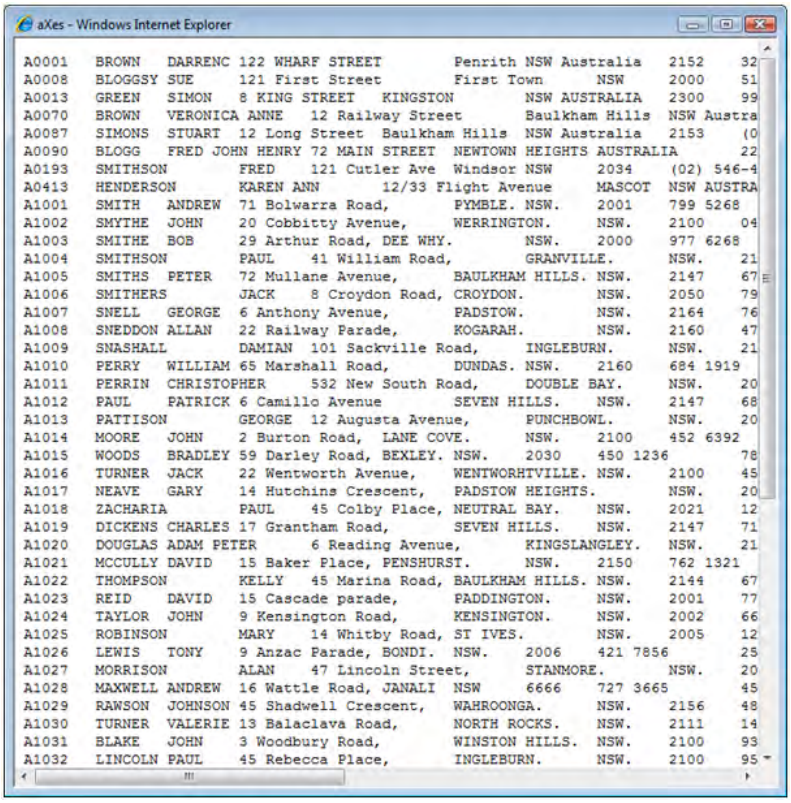
Clicking a mouse button on a row opens the floating menu showing options for working with query data.



Surname	Given name(s)	Date of Birth	Start Date	Dept Code	Section Code	Employee Number
BROWN	VERONICA	19760303	20090128	GAC	03	A0070
BLOGGS	FRED JOHN ALAN	19720808	19920803	FLT	03	A0090
SMITHSON	FRED	19591010	19890703	ADM	05	A0193
SIMPSON	ANNE	19721225	19940303	AUD	03	A0907
JONES	BEN	19640119	[illegible]	ADM	01	A1001
SMYTHE	JOHN	19570916	[illegible]	FLT	02	A1002
SMITHE	ROBERT	19670717	[illegible]	FLT	02	A1003
SMITHSON	PAUL	19610116	[illegible]	ADM	03	A1004
SMITHS	PETER	19430220	[illegible]	ADM	02	A1005
SMITHERS	JACK	19660612	19810601	TRVL	03	A1006
SNELL	GEORGE	19650110	19850301	AUD	01	A1007
SNEDDON	ALLAN	19871015	20061201	AUD	01	A1008
SNASHALL	DAMIAN	19580801	19831201	AUD	02	A1009
PERRY	WILLIAM	19560219	19750501	AUD	03	A1010
PERRIN	CHRISTOPHER	19450919	19920601	AUD	01	A1011
PAUL	PATRICK	19551001	19860501	ADM	01	A1012
PATTISON	GEORGE	19621102	19851201	ADM	01	A1013
MOORE	JOHN	19650202	19820201	ADM	02	A1014
WOODS	BRADLEY	19620211	19841212	ADM	01	A1015
TURNER	JACK	19570717	19870601	FLT	01	A1016

Figure 2: Options for Viewing and Copying the Query Data

Clicking the View All or View Selected items from the floating menu opens a new window to show the query data displayed as text.




```
A0001   BROWN   DARRENC 122 WHARF STREET        Penrith NSW Australia   2152    32
A0008   BLOGGSY SUE     121 First Street        First Town      NSW     2000    51
A0013   GREEN   SIMON   8 KING STREET   KINGSTON        NSW AUSTRALIA   2300    99
A0070   BROWN   VERONICA ANNE   12 Railway Street       Baulkham Hills  NSW Austra
A0087   SIMONS  STUART  12 Long Street  Baulkham Hills  NSW Australia   2153    (0
A0090   BLOGG   FRED JOHN HENRY 72 MAIN STREET  NEWTOWN HEIGHTS AUSTRALIA       22
A0193   SMITHSON        FRED    121 Cutler Ave  Windsor NSW     2034    (02) 546-4
A0413   HENDERSON       KAREN ANN       12/33 Flight Avenue     MASCOT  NSW AUSTRA
A1001   SMITH   ANDREW 71 Bolwarra Road,       PYMBLE. NSW.    2001    799 5268
A1002   SMYTHE  JOHN    20 Cobbitty Avenue,     WERRINGTON.     NSW.    2100    04
A1003   SMITHE  BOB     29 Arthur Road, DEE WHY.        NSW.    2000    977 6268
A1004   SMITHSON        PAUL    41 William Road,        GRANVILLE.      NSW.    21
A1005   SMITHS  PETER   72 Mullane Avenue,      BAULKHAM HILLS. NSW.    2147    67
A1006   SMITHERS        JACK    8 Croydon Road, CROYDON.        NSW.    2050    79
A1007   SNELL   GEORGE  6 Anthony Avenue,       PADSTOW.        NSW.    2164    76
A1008   SNEDDON ALLAN   22 Railway Parade,      KOGARAH.        NSW.    2160    47
A1009   SNASHALL        DAMIAN  101 Sackville Road,     INGLEBURN.      NSW.    21
A1010   PERRY   WILLIAM 65 Marshall Road,       DUNDAS. NSW.    2160    684 1919
A1011   PERRIN  CHRISTOPHER     532 New South Road,     DOUBLE BAY.     NSW.    20
A1012   PAUL    PATRICK 6 Camillo Avenue        SEVEN HILLS.    NSW.    2147    68
A1013   PATTISON        GEORGE  12 Augusta Avenue,      PUNCHBOWL.      NSW.    20
A1014   MOORE   JOHN    2 Burton Road,  LANE COVE.      NSW.    2100    452 6392
A1015   WOODS   BRADLEY 59 Darley Road, BEXLEY. NSW.   2030    450 1236        78
A1016   TURNER  JACK    22 Wentworth Avenue,    WENTWORHTVILLE. NSW.    2100    45
A1017   NEAVE   GARY    14 Hutchins Crescent,   PADSTOW HEIGHTS.        NSW.    20
A1018   ZACHARIA        PAUL    45 Colby Place, NEUTRAL BAY.    NSW.    2021    12
A1019   DICKENS CHARLES 17 Grantham Road,       SEVEN HILLS.    NSW.    2147    71
A1020   DOUGLAS ADAM PETER      6 Reading Avenue,       KINGSLANGLEY.   NSW.    21
A1021   MCCULLY DAVID   15 Baker Place, PENSHURST.      NSW.    2150    762 1321
A1022   THOMPSON        KELLY   45 Marina Road, BAULKHAM HILLS. NSW.    2144    67
A1023   REID    DAVID   15 Cascade parade,       PADDINGTON.     NSW.    2001    77
A1024   TAYLOR  JOHN    9 Kensington Road,      KENSINGTON.     NSW.    2002    66
A1025   ROBINSON        MARY    14 Whitby Road, ST IVES.        NSW.    2005    12
A1026   LEWIS   TONY    9 Anzac Parade, BONDI.  NSW.    2006    421 7856        25
A1027   MORRISON        ALAN    47 Lincoln Street,      STANMORE.       NSW.    20
A1028   MAXWELL ANDREW  16 Wattle Road, JANALI  NSW     6666    727 3665        45
A1029   RAWSON  JOHNSON 45 Shadwell Crescent,   WAHROONGA.      NSW.    2156    48
A1030   TURNER  VALERIE 13 Balaclava Road,      NORTH ROCKS.    NSW.    2111    14
A1031   BLAKE   JOHN    3 Woodbury Road,        WINSTON HILLS.  NSW.    2100    93
A1032   LINCOLN PAUL    45 Rebecca Place,       INGLEBURN.      NSW.    2100    95
```

Figure 3: View Query Data as Text (tab separated format)

Figure 3 (page 10) is an example of query data viewed as text and formatted as tab separated values (TSV). Clicking the Copy All or Copy Selected items from the floating menu copies the query data to the clipboard. You can paste the query data to other applications that support the clipboard (Microsoft Excel is an example).

Installation

You do not need to install any software on your computer or mobile device to use DE.

The prerequisites for DE are:

- A supported browser - Chrome, Firefox, Internet Explorer and Safari
- A network connection to the Internet and/or corporate network (fixed line or wireless)
- The address (URL) for DE at your site

Obtain the address (URL) for DE from your administrator or your administrator may place an icon on your desktop.

Starting

From your browser

To start DE from your browser:

1.	Open the browser.
2.	Type the address (URL) into the location bar and press the Enter key or the Go icon.
3.	Wait for DE to display the Access log on page and then follow the log on instructions.

From a desktop shortcut

You or your administrator can set up a shortcut to open the browser and go to the address for DE immediately.

To start DE from a shortcut:

1.	Click on the shortcut (or open the shortcut) - the browser will start and connect to DE.
2.	Wait for DE to display the Access log on page and then follow the log on instructions.

To set up the desktop shortcut for Internet Explorer, create a new shortcut, open the properties and insert the equivalent of the following as the target property:

"C:\Program Files\Internet Explorer\iexplore.exe" www.myaXesDE-URL.com

To set up the desktop shortcut for Firefox, create a new shortcut, open the properties and insert the equivalent of the following as the target property:

"C:\Program Files\Mozilla Firefox\firefox.exe" www.myaXesDE-URL.com

The URL http://www.myaXesDE-URL.com:80/axes/database-manager.html is an example of the actual URL for DE at your site. This example uses port 80 and the default page for DE.

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Log on

When DE starts, the browser will show the Access log on page and display the Access dialogue window.

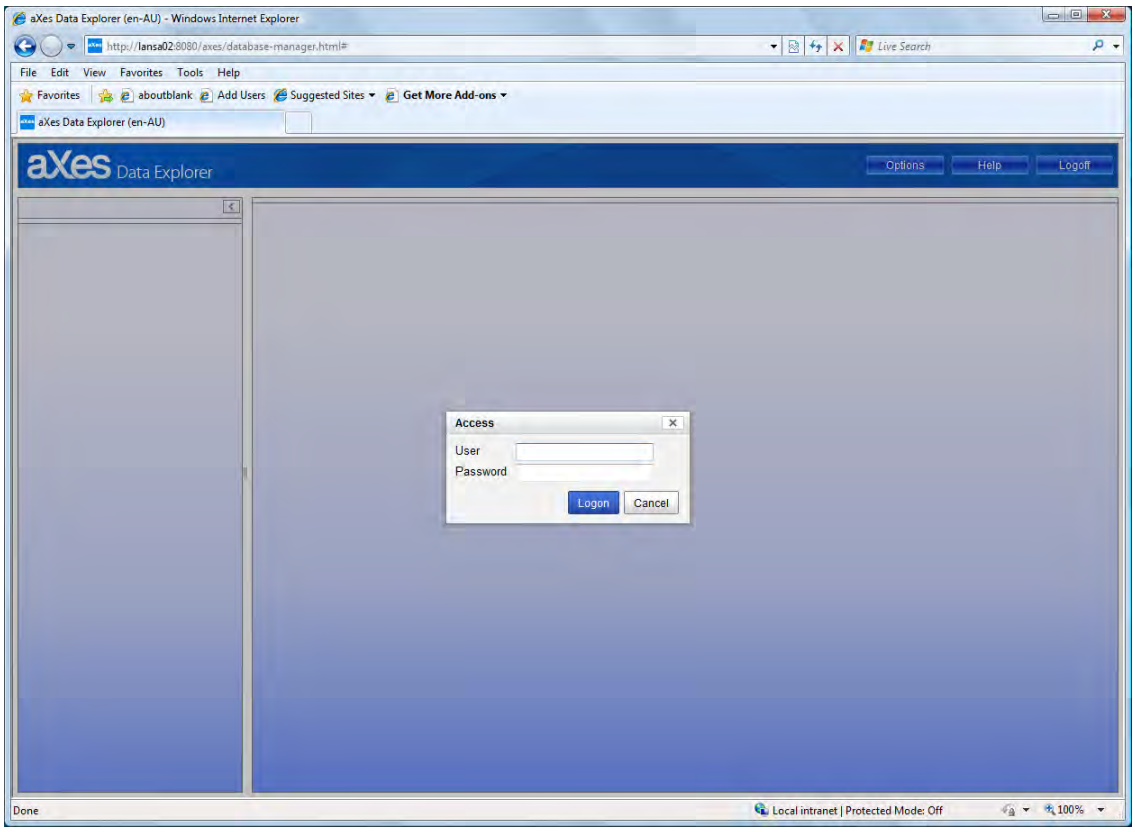

Figure 4: Access Logon Page

Your user identification and password

To log on to DE you must provide your user identification and password (credentials):

1.	Type your user identification.
2.	Type your password.
3.	Press the Logon button
4.	Wait while DE verifies your credentials. If your log on is successful, DE will display the next page. If your log on is unsuccessful, DE will display an error message.

What to do if log on fails

Log on will fail if you make a mistake typing the user identification and/or the password. Check you have the correct user identification and re-type the password.

If you forget your user identification and/or password contact your administrator.

If you do not know your user identification and/or password contact your administrator.

Cancel DE without logging on

To cancel DE without logging on click the Cancel button and wait while DE closes.

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Section 2 - What do you want to do?

This section describes common tasks and the steps needed to complete the tasks. For example, the task “view the data obtained by running a query” consists of a series of steps involving filters, searches, search results and displaying the query data.

The later sections include detailed descriptions and instructions for performing the individual steps within tasks.

Filter tasks

Query filter tasks

Create a query filter

To create a query filter:

1.	Create a query filter.
2.	Define the data selection criteria using SQL in the query filter.
3.	Save the filter and/or run the query.

Create a query filter with variable selection criteria

To create a query filter with parameters for variable selection criteria:

1.	Create a query filter.
2.	Define the data selection criteria using SQL in the query filter.
3.	Place a question mark in the SQL for each parameter.
4.	Design the query parameter form.
5.	Save the filter and/or run the query.

Change a query filter

To change a query filter:

1.	Edit the query filter you want to change.
2.	Amend the data selection criteria in the query filter.
3.	Save the filter and/or run the query.

Delete a query filter

To delete a query filter:

1.	Click on the query filter you want to delete.
2.	Delete the query filter.

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Run a query filter

To run a query filter:

1.	Click on the query filter you want to run and choose Run from the menu.
2.	Wait while DE runs the query and displays the query data.
3.	View the query data.

Table filter tasks

Create a table filter

To create a table filter:

1.	Create a table filter.
2.	Define the table search criteria in the table filter.
3.	Save the filter and/or perform the table search.

Change a table filter

To change a table filter:

1.	Open the table filter you want to change.
2.	Amend the table search criteria in the table filter.
3.	Save the filter and/or perform the table search.

Delete a table filter

To delete a table filter:

1.	Click on the table filter you want to delete.
2.	Delete the table filter.

Run a table filter

To run a table filter:

1.	Click on the table filter you want to run and choose Run from the menu.
2.	Wait while DE runs the search for tables and displays the query results.
3.	View the list of tables.

Folder tasks

Create a folder

To create a folder:

1.	Click in the left pane.
2.	Choose New to create a folder.

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Change a folder name

To change a folder name:

1.	Edit the folder you want to rename.
2.	Amend the folder properties.
3.	Save the folder.

Delete a folder

To delete a folder:

1.	Click on the folder you want to delete.
2.	Delete the folder.

Query tasks

Query database tables

To query database tables:

1.	Create a query filter.
2.	Define the data selection criteria in the query filter. Optionally, save the query filter.
3.	Run the query filter to retrieve the query data.
4.	DE will display the query data as a list of rows.

Copy query data

To copy query data:

1.	Create a query filter.
2.	Define the selection criteria in the query filter.
3.	Run the query filter to retrieve the query data.
4.	DE will display the query data as a list of rows.
5.	Select the query data.
6.	Copy the query data to the clipboard.
7.	Switch to the application into which you will paste the query data.
8.	Paste the query data from the clipboard into another application.

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View query data

To view data retrieved by running a query:

1.	Create a query filter or run a saved query filter.
2.	For new query filters - define the query selection criteria. For saved query filters - amend the query selection criteria (where necessary). Optionally, save the query filter.
3.	Run the query filter to retrieve the query data.
4.	View the query data.

Table tasks

Search for tables

To search for tables:

1.	Create a table filter.
2.	Define the search criteria in the table filter. Optionally, save the table filter.
3.	Perform the search.
4.	DE will display the search results as a list of tables.

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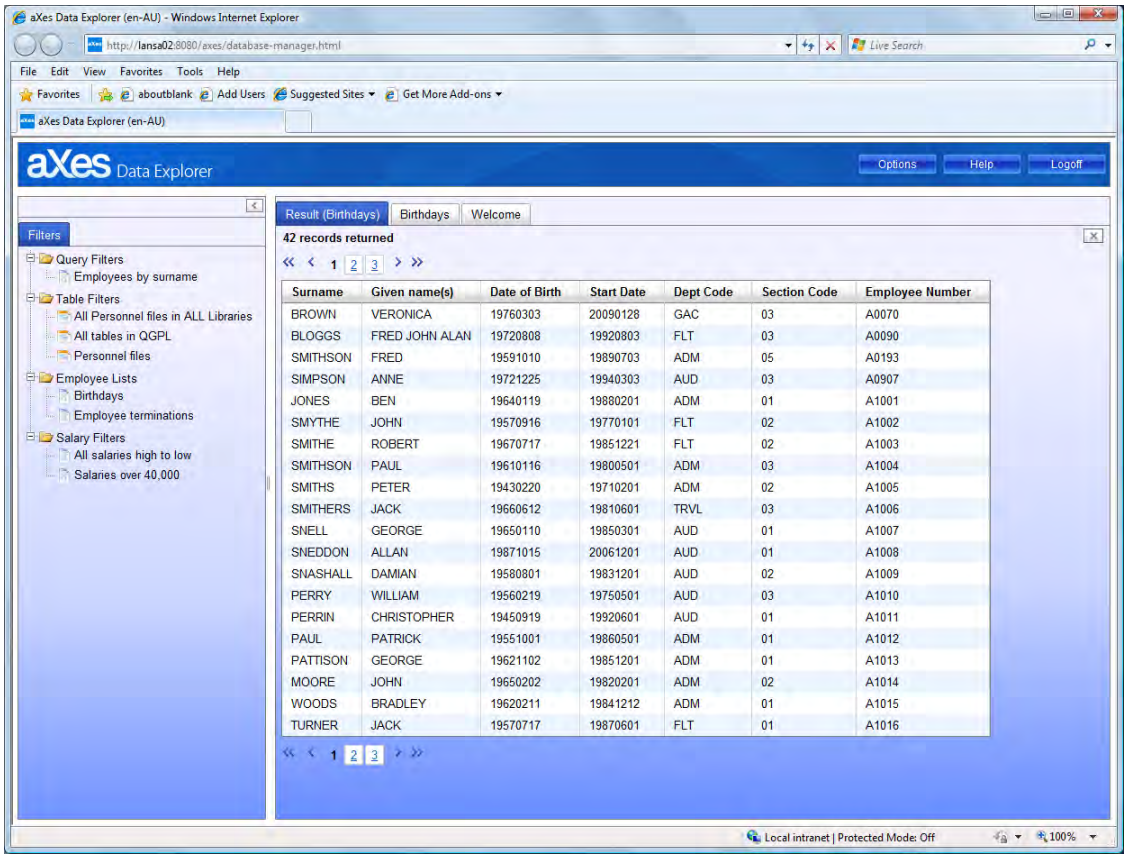
Section 3 - Work with query data

This section describes how to view and copy query data produced by running queries and download query data into office tools like Microsoft Excel.

Retrieve query data

When you run a query filter, DE returns the resulting query data as a set of rows in a grid on a results tab. The query data comprises rows from the table(s) that match the selection criteria specified in the query filter.



Surname	Given name(s)	Date of Birth	Start Date	Dept Code	Section Code	Employee Number
BROWN	VERONICA	19760303	20090128	GAC	03	A0070
BLOGGS	FRED JOHN ALAN	19720808	19920803	FLT	03	A0090
SMITHSON	FRED	19591010	19890703	ADM	05	A0193
SIMPSON	ANNE	19721225	19940303	AUD	03	A0907
JONES	BEN	19640119	19880201	ADM	01	A1001
SMYTHE	JOHN	19570916	19770101	FLT	02	A1002
SMITHE	ROBERT	19670717	19851221	FLT	02	A1003
SMITHSON	PAUL	19610116	19800501	ADM	03	A1004
SMITHS	PETER	19430220	19710201	ADM	02	A1005
SMITHERS	JACK	19660612	19810601	TRVL	03	A1006
SNELL	GEORGE	19650110	19850301	AUD	01	A1007
SNEDDON	ALLAN	19871015	20061201	AUD	01	A1008
SNASHALL	DAMIAN	19580801	19831201	AUD	02	A1009
PERRY	WILLIAM	19560219	19750501	AUD	03	A1010
PERRIN	CHRISTOPHER	19450919	19920601	AUD	01	A1011
PAUL	PATRICK	19551001	19860501	ADM	01	A1012
PATTISON	GEORGE	19621102	19851201	ADM	01	A1013
MOORE	JOHN	19650202	19820201	ADM	02	A1014
WOODS	BRADLEY	19620211	19841212	ADM	01	A1015
TURNER	JACK	19570717	19870601	FLT	01	A1016

Figure 5: Query Data Results - Data Sheet Grid View

Figure 5 (page 17) is an example of query data. Running the query filter titled “Birthdays” produces a list of current employees with their date of birth.

Sort query data

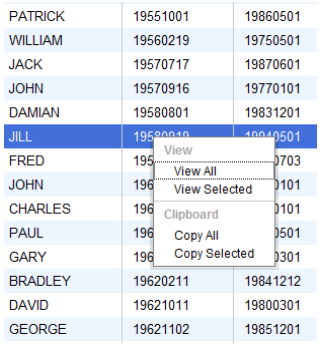
When viewing query data on a results tab (Figure 5, page 17) you can sort the query data by a column in the grid. Click on a column heading to sort the query data based on the data values in the column.

Copy query data

You can copy query data to the clipboard and from there paste the query data into other applications that support clipboard operations. For example you can paste the query data into a worksheet in a Microsoft Excel workbook.

To copy the query data:

1.	Click on the row or rows in the query data to select the data you want to copy.
2.	From the floating menu choose, Clipboard - Copy All, to copy all of the query data. Clipboard - Copy Selected, to copy the selected rows.
3.	Wait while DE copies the query data.
4.	Switch to the application into which you want to paste the query data.
5.	Paste the query data from the clipboard.



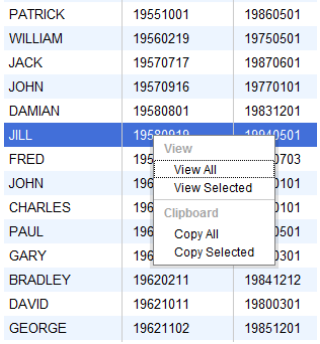
Copying and pasting query data may produce unexpected results with different applications. You must verify the capabilities of the application to manage data pasted from the clipboard. For example, you may have to use Paste Special and then choose an unformatted text option to achieve your desired result.

View query data

DE displays query data in a separate window.

To view query data:

1.	Click on the row or rows in the query data results to select the data you want to copy.
2.	From the floating menu choose, View - View All, to see all of the query data. View - View Selected, to see the selected rows.
3.	Wait while DE retrieves the query data.
4.	DE will open a new window showing the query data formatted as tab separated values (TSV).



You can copy and paste the query data rendered this way.

Section 4 - Searches, queries, filters and folders

This section describes how to use table searches, queries, filters and folders. Examples are:

- Perform a search for database tables
- Define selection criteria and the filters to query database tables
- Save search and selection criteria as filters
- Create and manage folders

Search for tables

You search for tables (or files) with a table filter.

Searches include tables, views, physical files, logical files and indexes.

Table search criteria are table names and library names.

Query data in tables

You retrieve data from tables by running a query filter.

Query filters use SQL to describe the criteria for selecting data from the tables chosen for the query.

Filters

Query filters

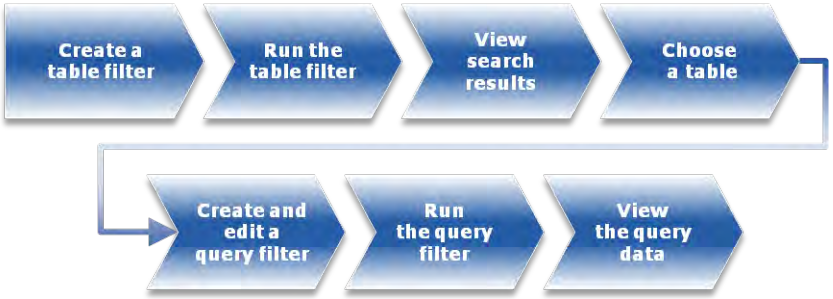
Selecting data with a query filter

You select and retrieve data from tables by running a query filter.

DE provides two options for creating a query filter:

Option 1: create the query filter by writing all the SQL

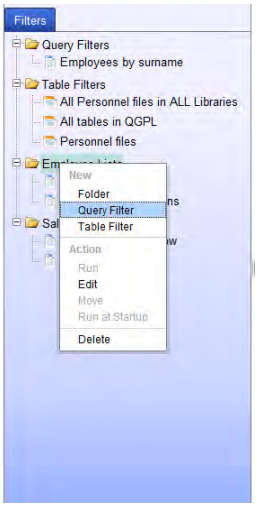
Option 2: create the query filter from a table



Create a query filter by writing all the SQL

To create a query filter starting from an empty edit tab you must insert all of the SQL statements for your query. To create a query filter in this way:

1.	In the filters pane click on the folder in which you want to save the filter.
2.	From the floating menu choose New - Query Filter.
3.	Wait until DE shows the tab to edit the filter (Figure 6, page 20).
4.	Type your selection criteria for the filter. The selection criteria are the SQL statements that define the query.
5.	If you need to clear the edit tab, press the Reset button.
6.	Press the Save button to save the filter in a folder. DE will ask you to confirm the save action: Answer Yes to save the filter. Answer No and DE will not save the filter.
7.	Press the Run button to start the query immediately. You can run the query without saving the filter.



When creating the filter, choose a name for the filter and define the search and selection criteria using SQL statements.

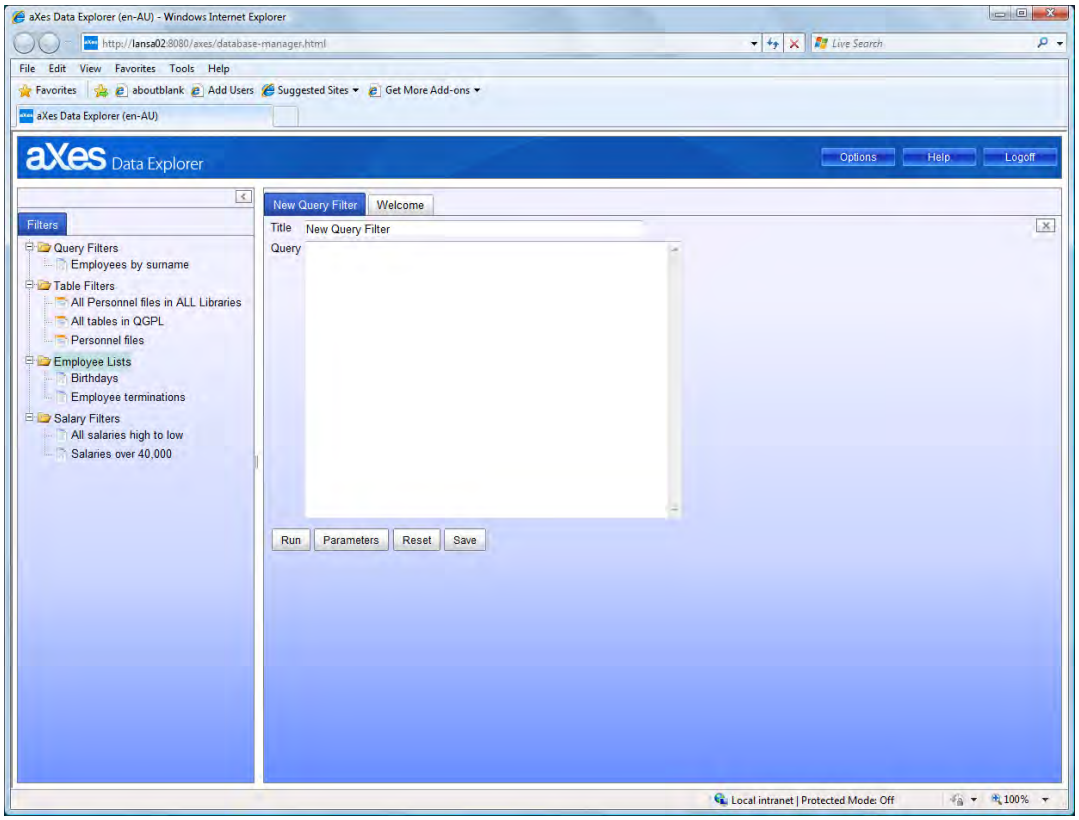


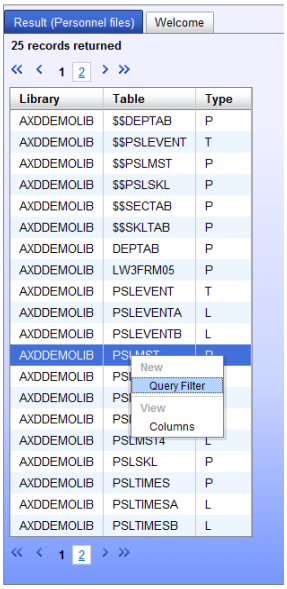
Figure 6: New Query Filter - Edit Tab

Figure 6 (page 20) shows the edit tab for a new query filter.

Create a query filter starting from a table

To create a query filter starting from a table:

1.	Create and run a table filter (or use an existing table filter) to find the table you want to use in the query filter.
2.	Select a table from the table search results.
3.	From the floating menu on the table search results choose New - Query Filter.
4.	Wait until DE shows the tab to edit the query filter. DE will insert the SQL for a select query to retrieve all columns from the table.
5.	Edit the SQL to suit your selection criteria for the query filter.
6.	Press the Save button to save the filter in a folder. DE will ask you to confirm the save action: Answer Yes to save the filter. Answer No and DE will not save the filter.
7.	Press the Run button to start the query immediately. You can run the query without saving the filter.



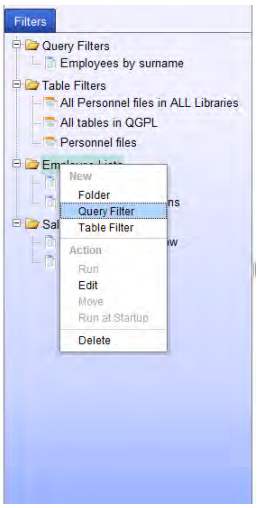
This method is the quickest way to create a simple query using one table. It also provides the basis for extending the query to include additional tables.

Run a query filter

Running a query filter causes the query to select data from the tables based on the selection criteria described in the filter.

To run a query filter:

1.	In the filters pane click on the query filter name.
2.	From the floating menu choose Action - Run.
3.	Wait while DE runs the query to retrieve the query data.
4.	DE displays the query data in a new tab in the right-hand pane.
5.	View the query data.



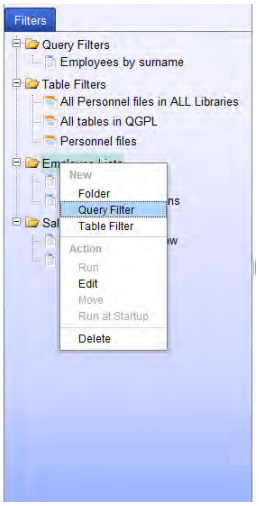
Query filters without variable selection criteria will start immediately. Query filters with variable selection criteria will ask for the selection values before running the query.

Run a query filter with variable selection criteria

When query filters have variable selection criteria, DE will ask for values for the selection criteria before running the query. Insert values into the selection criteria to start the query.

To run a query filter with variable selection criteria:

1.	In the filters pane click on the query filter name.
2.	From the floating menu choose Action - Run.
3.	Wait until DE displays the query parameter form showing the parameters for the variable selection criteria.
4.	Insert values into the parameter or parameters and press the Run button (Figure 7, page 22).
5.	Wait while DE runs the query to retrieve the query data.
6.	DE displays the query data in a new tab in the right-hand pane.
7.	View the query data.



The values you insert into the parameters for the variable selection criteria will determine the resulting query data. It is possible that your choice of values will return no query data.

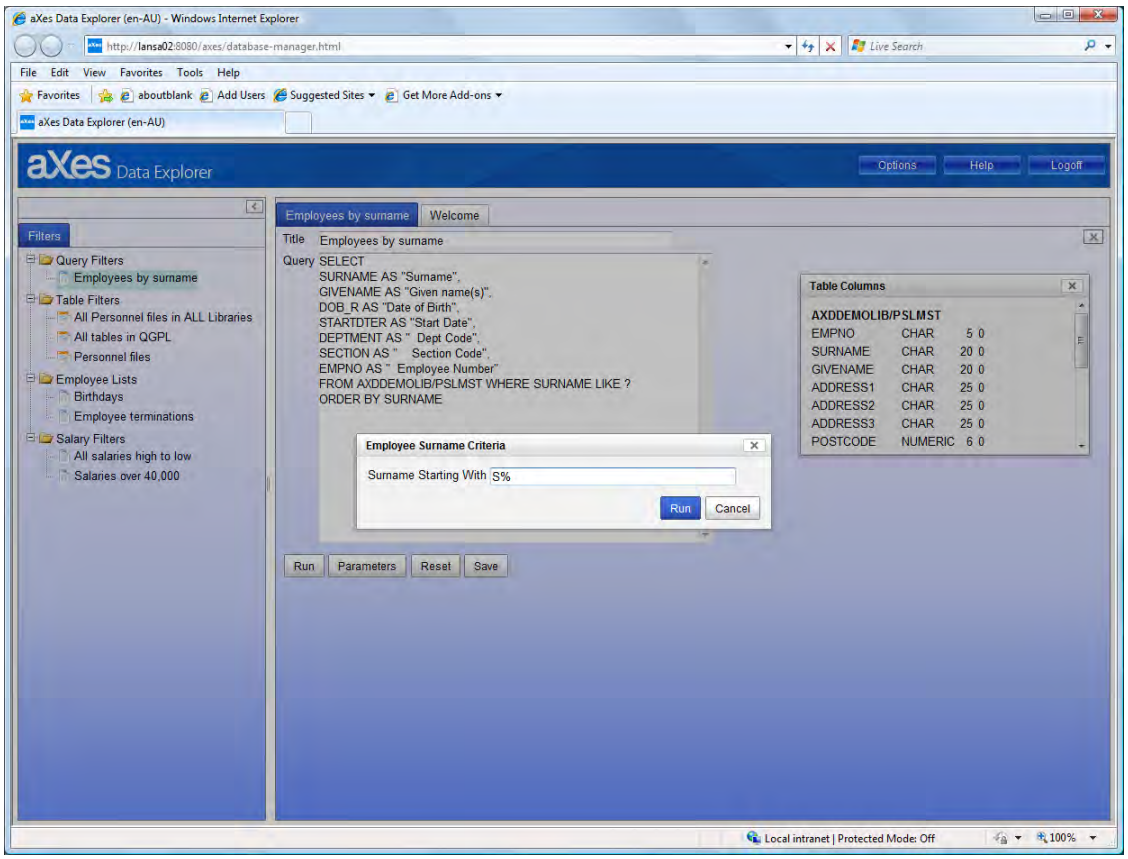


Figure 7: Run Query Filter with Variable Selection Criteria

Figure 7 (page 22) shows an example of a query filter with variable selection criteria and DE displaying a query parameter form to collect values for the selection criteria before submitting the query.

Edit a query filter

To change the selection criteria and filter details you edit the query filter.

To edit a query filter:

1.	In the filters pane click on the query filter name.
2.	From the floating menu choose Action - Edit.
3.	Wait until DE shows the tab to edit the filter.
4.	Amend the selection criteria and filter details (Figure 8, page 23).
5.	Press the Save button to save the filter in a folder. DE will ask you to confirm the save action: Answer Yes to save the filter. Answer No and DE will not save the filter.
6.	Press the Run button to start the query immediately. You can run the query without saving the filter.

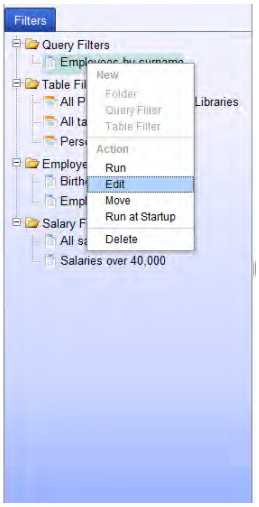


Figure 8 (page 23) shows an example of an edit tab for a query filter.

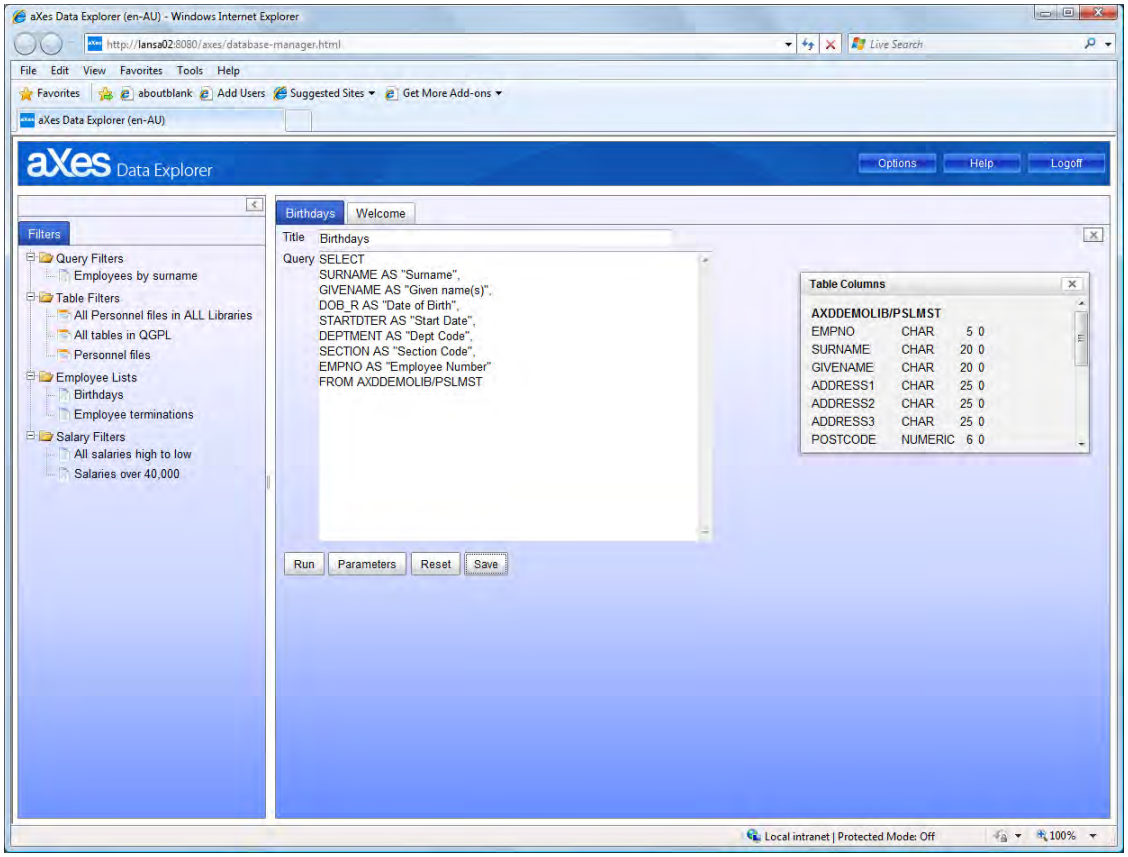


Figure 8: Query Filter Edit Tab

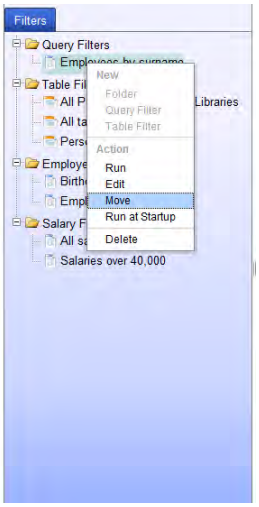
The tab shows the name of the query filter. This example shows the edit tab for the query filter titled Birthdays, an edit tab for a new query filter and the tab for the welcome page.

Move a query filter

Move allows you relocate a query filter from its existing folder to another folder.

To move a query filter:

1.	In the filters pane click on a query filter name.
2.	From the floating menu choose Action - Move.
3.	Wait until DE shows the list of folders available as destinations for the move (Select Folder dialog, Figure 9 on page 24).
4.	Choose a folder from the list and click on the name.
5.	Press OK to complete the move.
6.	Press Cancel to stop the move.



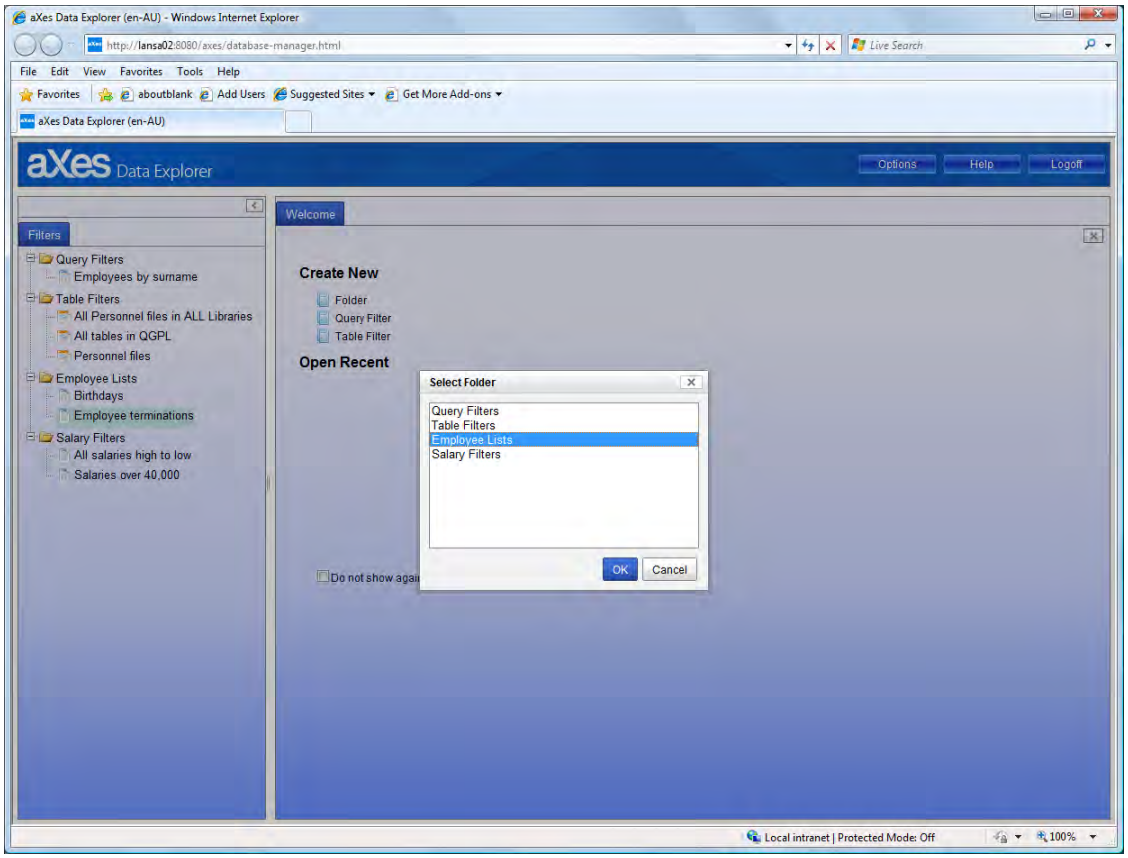


Figure 9: Move a Query Filter - Select Folder Dialog

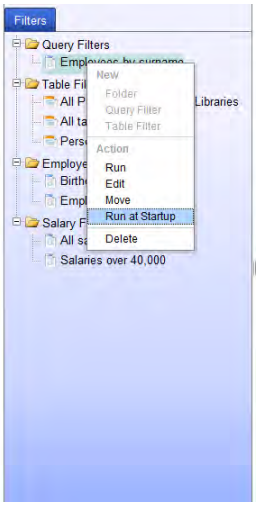
Figure 9 (page 24) shows the list of folders available as destinations when moving a query filter. In this example the query filter will move from the folder named Query Filter to the Employee Lists folder.

Run a query filter when DE starts

To run a query filter immediately when DE starts, set the start-up action for the query filter you want to run.

To run a query filter when DE starts:

1.	In the filters pane click on a query filter name.
2.	From the floating menu choose Action - Run at Startup.
3.	DE will set this query filter to run when DE starts. The Options tab shows the name of the start-up filter.



DE will run only one filter when it starts. The options are a query filter, or a table filter, or no filter.

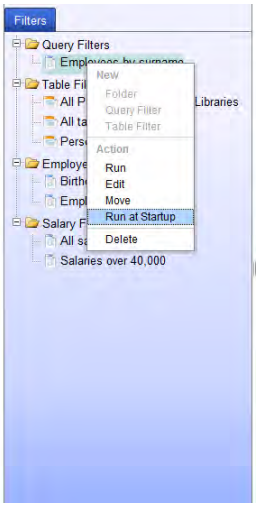
Running a filter when DE starts may take some time, depending on the selection criteria described in the query filter and the size of the tables used by the query.

Change the query filter that runs when DE starts

To change the query filter that runs immediately when DE starts, set the start-up action for another filter you want to run.

To change the query filter that runs when DE starts:

1.	In the filters pane click on the filter name that you want to run when DE starts.
2.	From the floating menu choose Action - Run at Startup.
3.	DE will remove the original query filter as the start-up filter.
4.	DE will set this query filter to run when DE starts. The Options tab shows the name of the start-up filter.



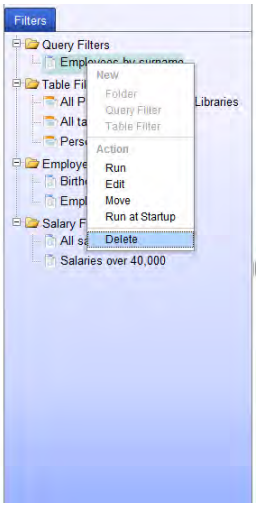
An alternate method to stop a filter running at start-up is to open the Options tab and press the Clear Startup Filter button.

Delete a query filter

Deleting a query filter removes the filter from DE.

To delete a query filter:

1.	In the filters pane click on a query filter name.
2.	From the floating menu choose Action - Delete.
3.	Wait until DE asks you to confirm the delete.
4.	Answer Yes to delete the filter. Answer No and DE will not delete the filter.



WARNING	You cannot undelete a query filter. Exercise care when deleting filters.

Table filters

Use table filters to search for tables. Table filters will search for tables, physical files, logical files, indexes and views.

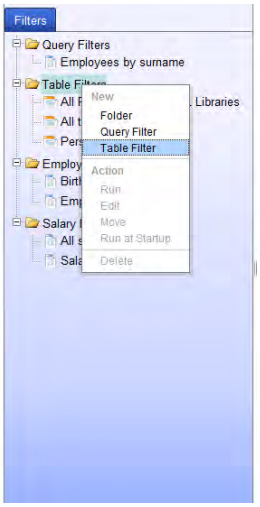
Search for tables

You search for tables by running a table filter.

Create a table filter

To create a table filter:

1.	In the filters pane click on the folder name in which you want to save the filter.
2.	From the floating menu choose New - Table Filter.
3.	Wait until DE shows the tab to edit the filter.
4.	Type your search criteria and filter details.
5.	If you need to clear the edit tab, press the Reset button.
6.	Press the Save button to save the filter in a folder.
7.	DE will ask you to confirm the save action: Answer Yes to save the filter. Answer No and DE will not save the filter.
8.	Press the Run button to start the search immediately. You can search for tables without saving the filter.



You can move the filter to a folder of your choice at any time.

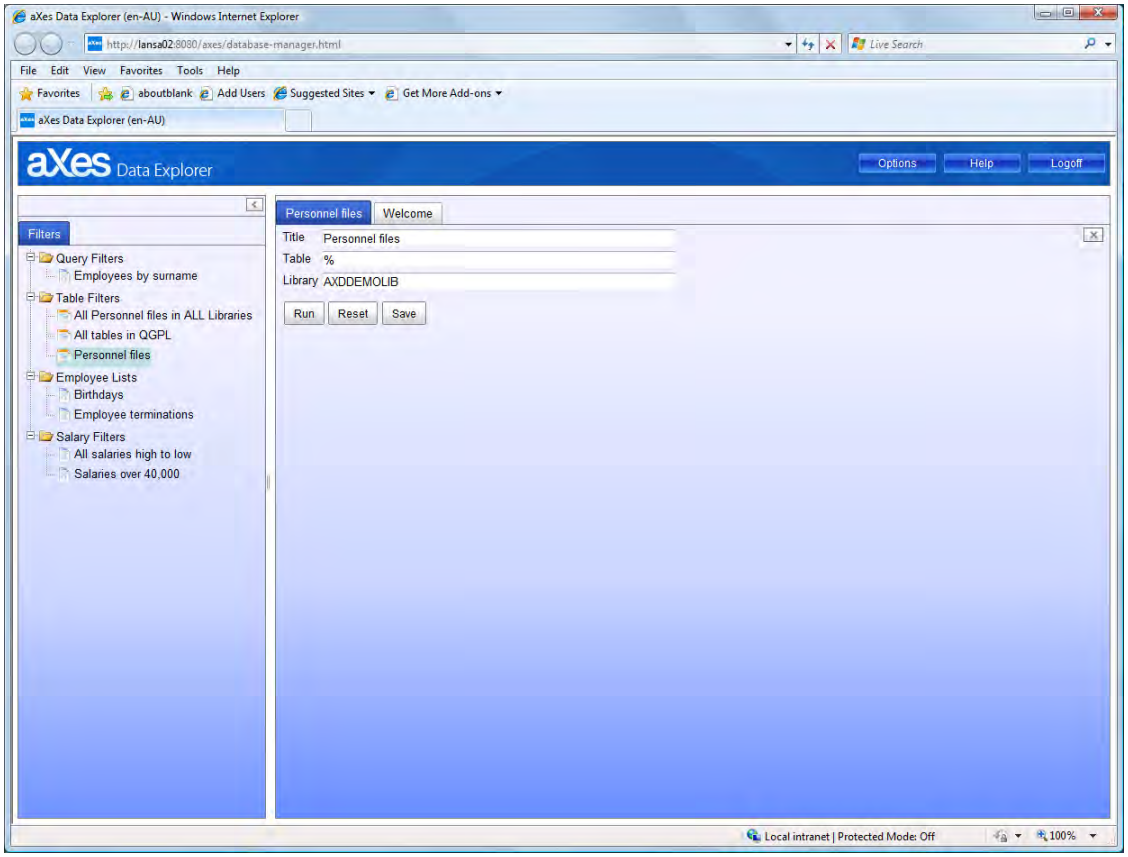


Figure 10: Table Filter Edit Tab

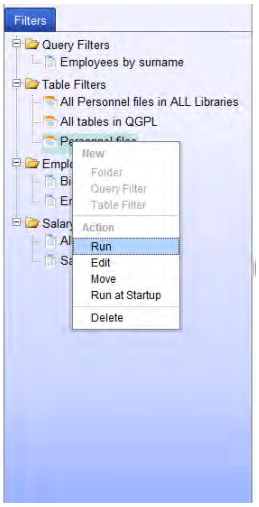
When creating a filter, define the table search criteria and filter properties for the table filter on the tab (Figure 10, page 28). This table filter will find all tables in the chosen library.

Run a table filter

Running a table filter starts a search for tables based on the search criteria described in the filter.

To run a table filter:

1.	In the filters pane click on the table filter name.
2.	From the floating menu choose Action - Open.
3.	Wait while DE performs the search for tables.
4.	DE displays the search results in a new tab in the right-hand pane.
5.	View the search results.



Edit a table filter

To change the search criteria described by the table filter you edit the filter.

To edit a table filter:

1.	In the filters pane click on the table filter name.
2.	From the floating menu choose Action - Edit.
3.	Wait until DE shows the tab to edit the filter.
4.	Amend the search criteria and filter details.
5.	Press the Save button to save the filter in a folder. DE will ask you to confirm the save action: Answer Yes to save the filter. Answer No and DE will not save the filter.
6.	Press the Search button to start searching immediately. You can search for tables without saving the filter.

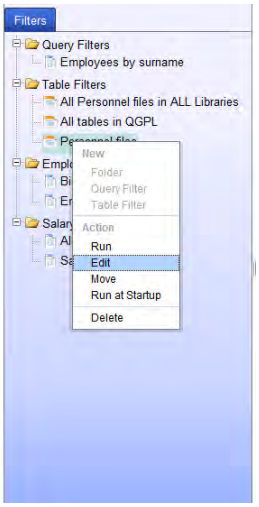


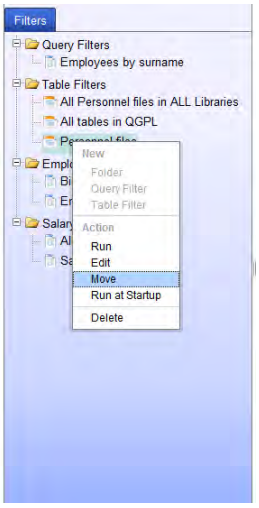
Figure 10 (page 28) shows an example of an edit tab for a table filter.

Move a table filter

Move allows you relocate a table filter from its existing folder to another folder.

To move a table filter:

1.	In the filters pane click on the table filter name.
2.	From the floating menu choose Action - Move.
3.	Wait until DE shows the list of folders available as destinations for the move (Figure 11, page 30).
4.	Choose a folder from the list and click on the name.
5.	Press OK to complete the move.
6.	Press Cancel to stop the move.



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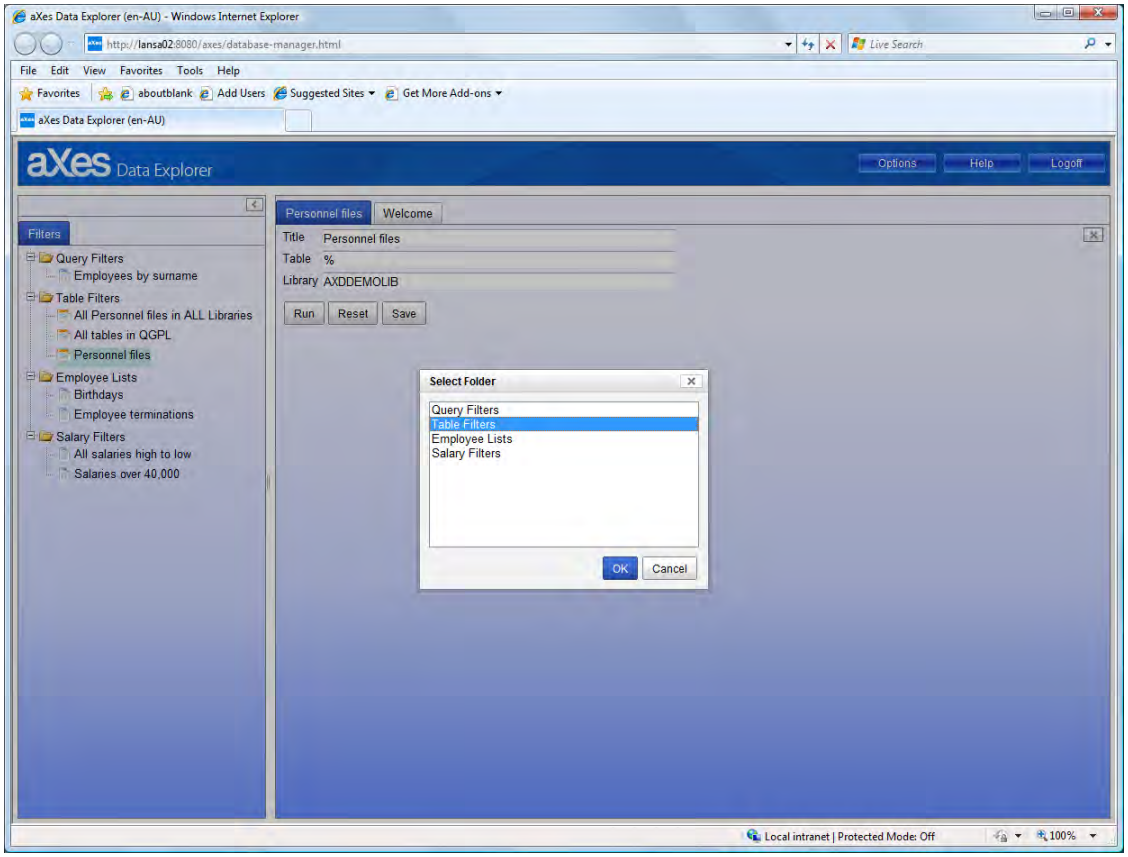


Figure 11: Move a Table Filter - Select Destination Folder Dialog

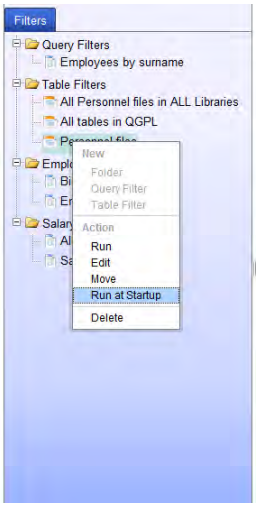
Figure 11 (page 30) shows the list of folders available as destinations when moving a table filter.

Run a table filter when DE starts

If you want to run a table filter immediately when DE starts, set the start-up action for the filter you want to run.

To run a table filter when DE starts:

1.	In the filters pane click on a table filter name.
2.	From the floating menu choose Action - Run at Startup.
3.	DE will set this table filter to run when DE starts. The Options tab shows the name of the start-up filter.



DE will run only one filter when it starts. The options are a query filter, or a table filter, or no filter.

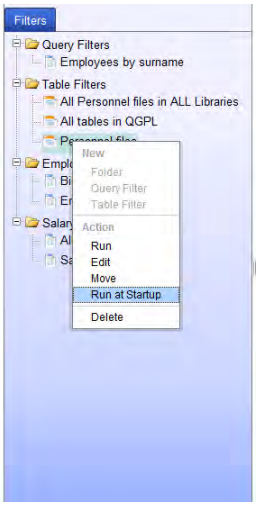
Running a table filter when DE starts may take some time, depending on the search criteria described in the filter.

Change the table filter that runs when DE starts

To change the table filter that runs immediately when DE starts, set the start-up action for another filter you want to run.

To change the table filter that runs when DE starts:

1.	In the filters pane click on a table filter name.
2.	From the floating menu choose Action - Run at Startup.
3.	DE will remove the original table filter as the start-up filter.
4.	DE will set this table filter to run when DE starts. The Options tab shows the name of the start-up filter.



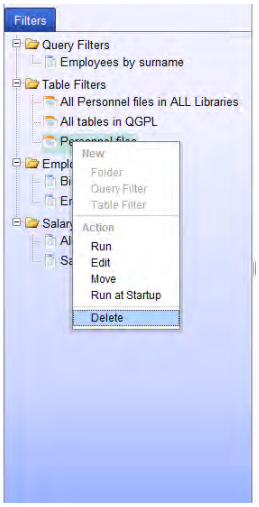
An alternate method to stop a table filter running at start-up is to open the Options tab and press the Clear Startup Filter button.

Delete a table filter

Deleting a table filter removes the filter from DE.

To delete a table filter:

1.	In the filters pane click on a table filter name.
2.	From the floating menu choose Action - Delete.
3.	Wait until DE asks you to confirm the delete.
4.	Answer Yes to delete the filter. Answer No and DE will not delete the filter.



WARNING	You cannot undelete a table filter. Exercise care when deleting filters.

Folders

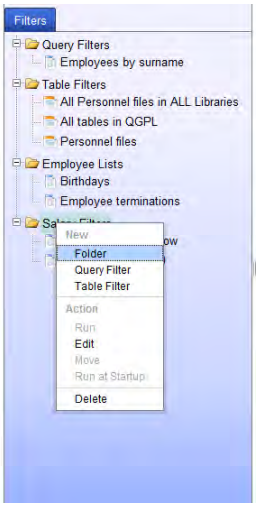
You can organise your query and table filters by saving them in folders. You must create the folders you want to use before you can save a filter in a folder.

Avoid generic names when assigning names to folders. Choose names that indicate the content of the folder. Using appropriate names will help you to find filters quickly.

Create a folder

To create a folder:

1.	In the filters pane click on a folder name.
2.	From the floating menu choose New - Folder.
3.	Wait until DE shows the folder title dialogue box.
4.	Type a title for the folder in the folder dialogue box.
5.	Press OK to save the folder. Press Cancel if you do not want to keep the folder.



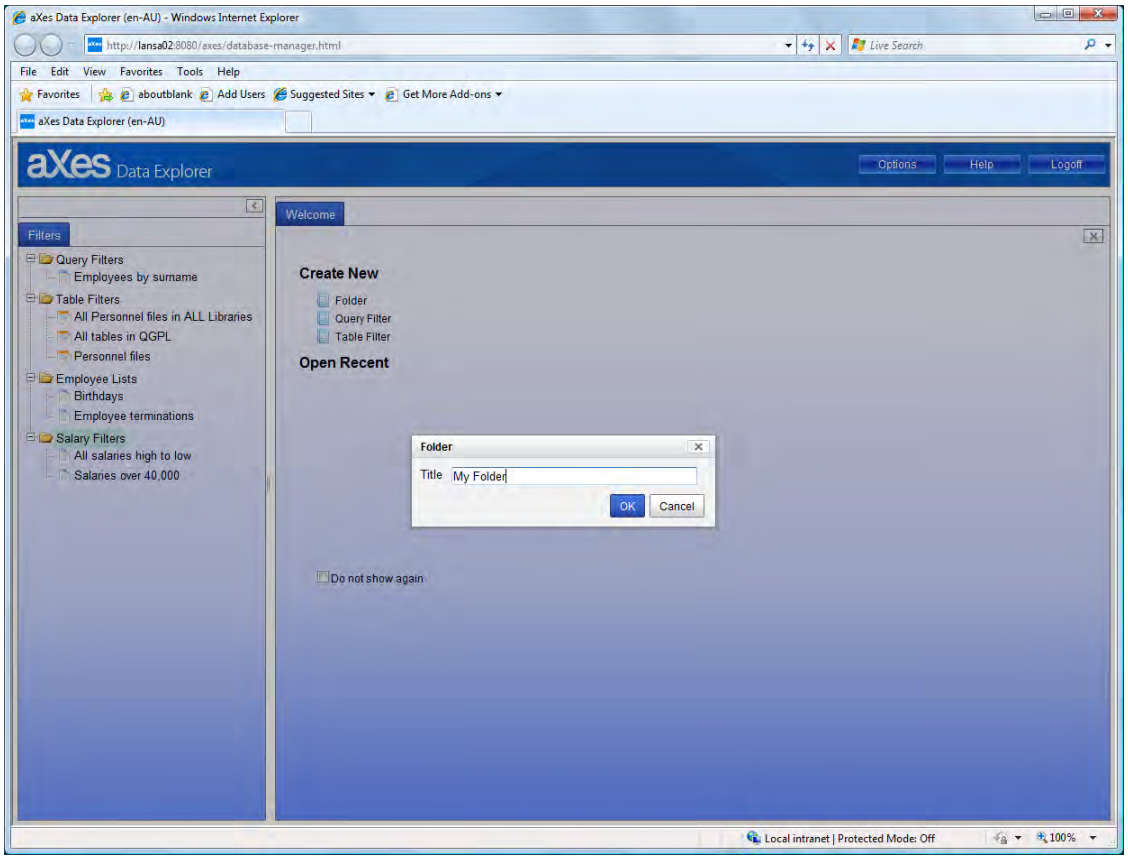


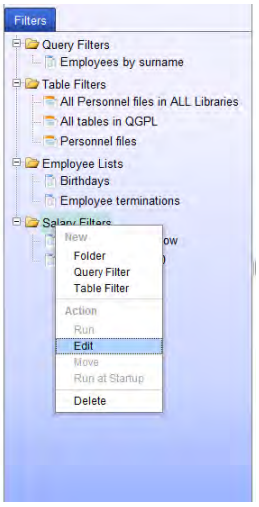
Figure 12: Create Folder - Define Folder Title

Figure 12 (page 32) shows the dialog to define a title (or name) for a new folder.

Edit folder properties

To edit a folder's properties:

1.	In the filters pane click on a folder name.
2.	From the floating menu choose Action - Edit.
3.	Wait until DE shows the folder dialogue box.
4.	Edit the folder properties in the folder dialogue box.
5.	Press OK to save the folder. Press Cancel if you do not want to change the folder title.



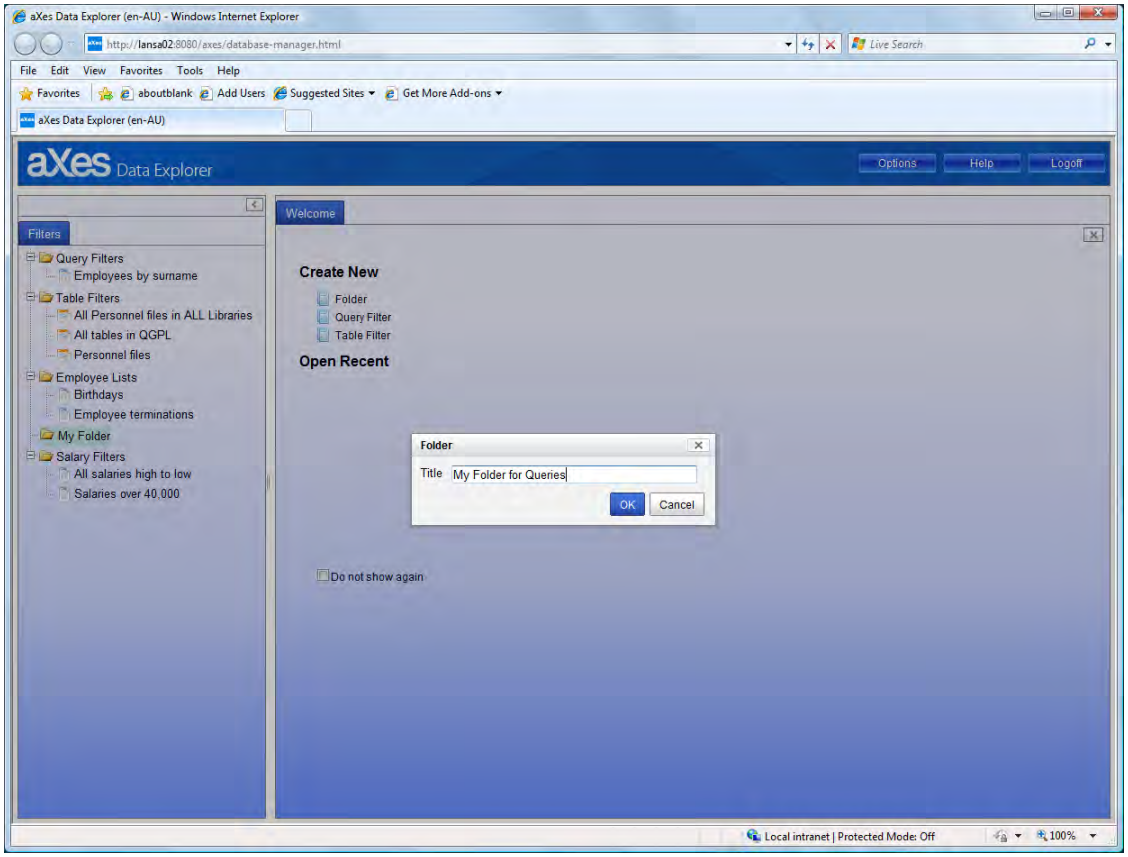


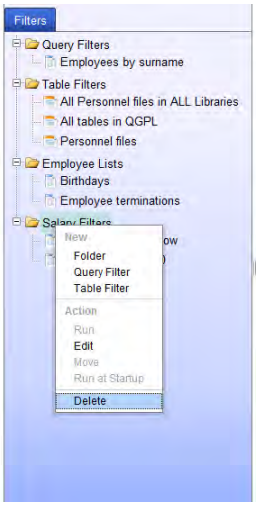
Figure 13: Edit Folder Title

Figure 13 (page 33) shows the folder title changed from "My Folder" to "My Folder for Queries".

Delete a folder

To delete a folder:

1.	In the filters pane click on the folder name.
2.	From the floating menu choose Action - Delete.
3.	Wait until DE asks you to confirm the delete.
4.	Answer Yes to delete the folder. Answer No and DE will not delete the folder.



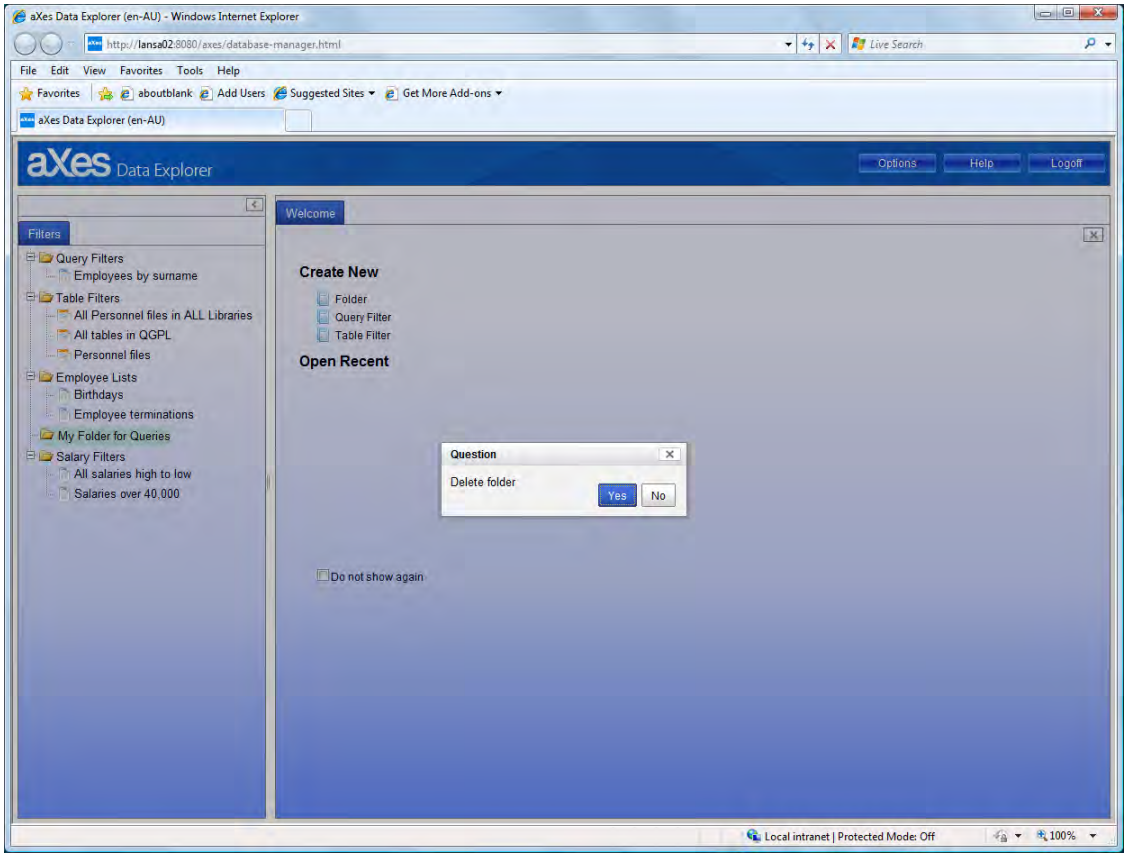


Figure 14: Delete Folder - Confirm Delete

When you delete a folder DE asks you for confirmation before deleting the folder (Figure 14, page 34).

WARNING	You cannot undelete a folder. Exercise care when deleting folders.

Section 5 - Concepts and configuration

The information in this section describes the components of DE explaining the concepts, how DE operates and answering questions about the components of DE.

Filters

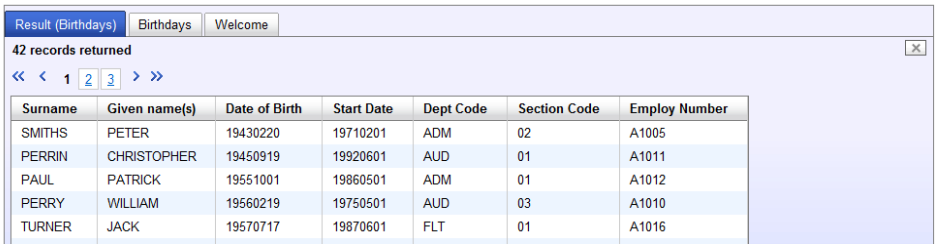
What are filters?

Filters contain the selection and search criteria DE uses when running queries and performing searches for tables. There are two types of filters, query filters (or SQL queries) and table filters.

Query filters select and retrieve data from tables. Running a query filter will retrieve data that matches the selection criteria defined in the query filter.

Table filters search for tables that you wish to use in query filters.

The right-hand pane in the DE page includes zero or more tabs. DE uses the tabs to show the properties of a filter and the results returned by a filter in individual tabs. Figure 15 (page 35) shows three tabs. The visible tab titled, “Result (Birthdays)” is a results tab, showing data retrieved by running a query. The second tab titled, “Birthdays” is a tab for editing query filter properties including the SQL (this tab is out of view). The third tab is the welcome page (out of view).



Surname	Given name(s)	Date of Birth	Start Date	Dept Code	Section Code	Employ Number
SMITHS	PETER	19430220	19710201	ADM	02	A1005
PERRIN	CHRISTOPHER	19450919	19920601	AUD	01	A1011
PAUL	PATRICK	19551001	19860501	ADM	01	A1012
PERRY	WILLIAM	19560219	19750501	AUD	03	A1010
TURNER	JACK	19570717	19870601	FLT	01	A1016

Figure 15: Edit Filter Tabs and Filter Results Tabs

When you edit a filter DE will open the edit tab. Every time you run a query DE will open a new results tab. You may operate DE with many tabs open. DE does not close tabs automatically.

Table 1: Questions and Answers about Filters

Questions	Answers
Can I edit the name of the start-up filter on the Options tab?	No. You set the start-up filter from the filter itself. There is no need to edit the filter name on the Options tab.
Can I save filters?	You save filters in folders. Use the default folders or create your own folders.
Do I need to save a filter to run the filter?	No. You can create a filter and use it as one task. If you do not want to keep the filter, close the edit tab without saving the filter.
How do I close a tab?	Press the close icon ☒ on the tab.
How do I stop a filter running when DE starts?	Press the Clear Startup Filter button on the Options tab.

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Questions	Answers
I do not want to run any filters when DE starts.	Press the Clear Startup Filter button on the Options tab.
What is a query filter?	Query filters contain the SQL for the selection criteria and filter properties needed to run queries.
What is a table filter?	Table filters contain the search criteria and properties needed to search for files to use in query filters.
Why run a filter when DE starts?	When you need the same or similar information regularly, running the filter automatically when DE starts means the results will be available immediately. This saves you the effort of choosing and running a filter.
Why are there two types of filters?	Query filters examine the data in tables and retrieve the rows that match the selection criteria defined in the query filter. Table filters allow you to search for the tables that you want to use in a query filter. The search result returned by a table filter is a list of tables. Table filters do not retrieve the data from the tables.

The questions and answers in Table 1 (page 35) apply to both query and table filters. The following sections include questions and answers specific to query filters and table filters.

Query filters

Queries retrieve data from database tables using SQL. Query filters provide tools to build the queries and the SQL defines the data selection criteria for the query.

DE provides optional parameters for query filters so that you can run the same query filter and insert different values for each run.

Table 2: Query Filter Questions and Answers

Questions	Answers
Do I need to know SQL?	You do not need to know SQL to build simple query filters. DE will help you to construct the SQL for SELECT query filters. You should understand SQL if you want to build queries including SQL clauses like WHERE and LIKE. You need to know SQL if you want to build more complex queries that join tables.
Do I need to save a query filter to run the query?	No. You can create a query filter, run the query, and view the query data as one task. You can amend the SQL and run the query as many times as you wish. If you do not want to keep the query filter, close the edit tab.

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Questions	Answers
Why does DE allow only SELECT queries?	SQL is a powerful tool allowing you to manipulate data in tables and the tables themselves. The SELECT clause provides only data retrieval (read only) and does not manipulate the data in the table. DE is designed as query tool and is not a general purpose SQL editor. Therefore, SQL statements that manipulate tables or data are inappropriate. The safest way to run database queries in a browser is to use a read-only mode for access to the tables (the SELECT clause).

Table 2 (page 36) presents questions answers about query filters.

Data selection criteria and SQL

Queries consist of an SQL statement that defines the data selection criteria. When you run a query filter, DE retrieves the data based on the selection criteria. The SELECT statement defines the data to include in the query data. DE uses the WHERE clause as the selection criteria when retrieving data from the tables. Queries without a WHERE statement will select all of the data from the nominated tables.

You use the query filter edit tab to write the SQL that defines the data selection criteria.

Figure 16 (page 37) shows the components of the edit tab for a query filter.

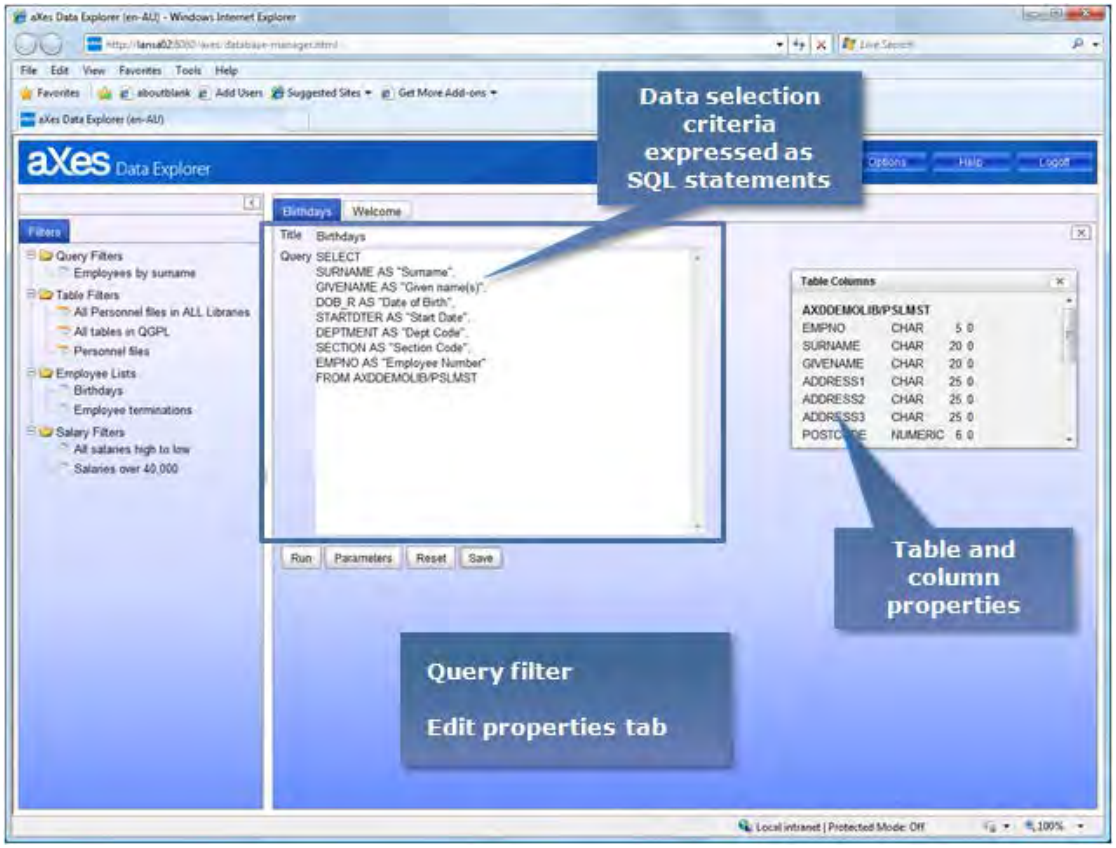

Figure 16: Query Filter Edit Tab - Components and Explanation

DE provides two ways to create query filters. One way is to write all of the SQL starting from an empty query filter. The second way is to search for a table and have DE generate the basic SQL for the query. Once you have the basic SQL you can edit it to build your query.

Data types: binary and character large objects (BLOB and CLOB)

Database tables may include columns using data type binary large object (BLOB) and/or data type character large object (CLOB). Using DE you can create and run query filters with tables that use these data types.

Think carefully before including BLOB and CLOB type columns in query filters. The performance might be slow and the query filter may return a large volume of query data.

Library and file names

DE allows table names as table name only or library and table name.

Table name alone	MYTABLE
Library and table name	QGPL/MYTABLE

Multi-member files

The syntax for table names in SQL does not allow for multi-member files. SQL is unable to work with individual members without explicit naming. Running a query filter using a multiple-member file without explicit names for the members will query only the first member.

To run a query filter for members in a multi-member file you must create an alias for each member, or at least each member you wish to query. The SELECT statement in the query filter will use the alias as the table name.

To create an alias for a member in a multi-member file:

1.	Start the interactive SQL program (STRSQL) from a command line or menu. You need a terminal session to run this command.
2.	Type the command: CREATE ALIAS library/memberalias FOR library/filename(membername) Where, library: is the name of the library in which the file resides, memberalias: is the name you wish to use as the alias for the member, filename: is the name of the file, and membername: is the real name of the member.
3.	Execute the command to create the alias. You could write a program to create aliases instead of performing the task interactively.

You create an alias once and then use the alias to refer to the file and member in query filters. When you rename a member you must create an alias for the renamed member.

Suppose you have a multi-member file named MYFILE in the QGPL library and the file has members whose names are THISYEAR and LASTYEAR. To run query filters for each member you need to create an alias for each member.

To create an alias for each member:

1.	Start the interactive SQL program (STRSQL).
2.	Type and execute the command: CREATE ALIAS qgpl/thisyear FOR qgpl/myfile(thisyear)
3.	Type and execute the command: CREATE ALIAS qgpl/lastyear FOR qgpl/myfile(lastyear)

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When you create query filters use the table names qgpl/thisyear and qgpl/lastyear. For example, the SQL statement, SELECT * FROM qgpl/thisyear, will retrieve all records from the member qgpl/myfile(this year).

Refresh query data

Right clicking on empty space on the query results tab will open a floating menu.

Choose the Refresh option to have DE refresh the query data.

Properties

Table 3 (page 39) defines the properties of a query filter.

Table 3: Query Filter Properties

Properties	Description
Title	Provide a title for the filter. The title is the name you see in the Filters pane.
Query	The query contains the SQL that the query filter will use to retrieve data from the table(s).

Query filters with variable selection criteria - query parameters

Why use variable selection criteria?

Variable selection criteria allow you to run the same query multiple times and set different selection values for each run without having to edit the SQL in the query filter every time. Suppose you have a query filter you want to use multiple times, varying the selection criteria each time you run the query. Examples are,

- Select employees born in a specific month
- Retrieve a list of employees filtered by surnames beginning with a specific letter

One way to implement variable selection criteria is to edit the query filter before each run. While this method will achieve the desired outcome, it forces you to edit the query filter multiple times and increases the risk of error.

DE provides a simpler and safer method by allowing you to define parameters for the variable selection criteria so that you can vary the values each time you run the query without editing the SQL in the query filter.

Inserting parameter values when you run the query will influence the query data returned by the query. It is possible to insert the parameter values so that the query returns no query data or returns a large volume of data.

Process for building query filters with variable selection criteria

The steps in the process (Figure 17, page 40) for building a query filter with variable selection criteria are:

- Create the query filter
- Place question marks in the SQL for the variable selection criteria (parameters)
- Design the query parameter form

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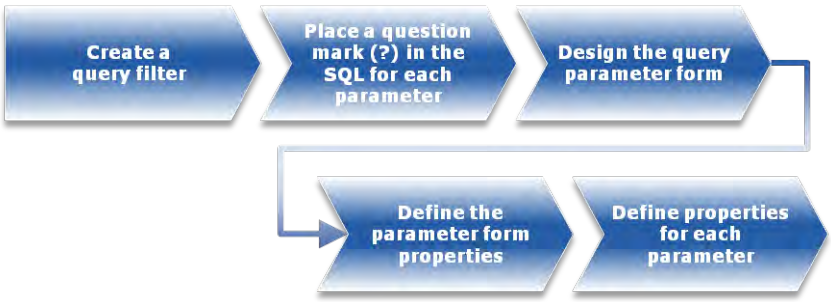

Figure 17: Process for Designing Queries with Variable Selection Parameters

To use variable selection criteria in query filters you identify the variable parameters by placing question marks in the SQL statement after the WHERE or LIKE clauses. For example:

```
SELECT * FROM employee WHERE surname LIKE ?
```

The question mark indicates a parameter. When you run the query, DE will present a query parameter form including a text box for the surname, allowing you to insert a value for the parameter as a full or partial name.

Place multiple question marks in the SQL statement when you want to use more than one parameter.

The next step is to design the query parameter form that DE will present when it runs the query. You insert a value for each of the parameters and DE will include the values in the SQL then run the query.

Designing the query parameter form

To design the query parameter form, open the parameter design panel by pressing the Parameters button on the query filter edit tab.

The parameter design panel specifies the properties DE uses to construct the query parameter form. Figure 18 (page 40) presents the components of the parameter design panel showing default property definitions for the query parameter form and default property definitions for a parameter.

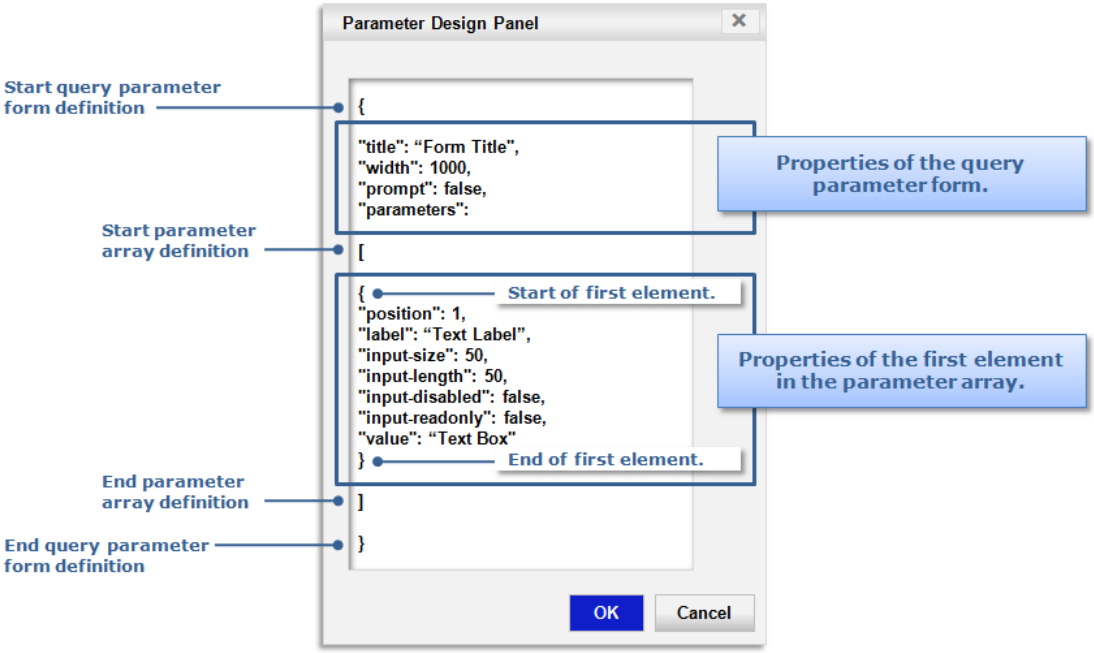

Figure 18: Components of the Parameter Design Panel

DE allows only one query parameter form for a query filter.

Table 4 (page 41) provides an explanation of each component in the parameter design panel.

Table 4: Parameter Design Panel Components Explanation

Components		Description
Start query parameter form definition	{	The left curly bracket marks the start of the query parameter form definition
Properties of the query parameter form		The query parameter form properties describe the size, title and behaviour of the form.
Start parameter array definition	[	The left square bracket marks the start of the parameter array.
Properties of the elements in the parameter array		The parameter array consists of one or more elements and one element represents one parameter. The array element contains the parameter properties. Figure 18 shows the properties for the first parameter. Curly brackets { } enclose each element. A comma follows each element { }, with these exceptions. When only one element is present no comma is allowed. The last element does not have a following comma. Figure 20 (page 42) shows an example with multiple elements.
End parameter array definition	]	The right square bracket marks the end of the parameter array.
End query parameter form definition	}	The right curly bracket marks the end of the query parameter form definition

The relative positions of the elements in the parameter array determine the position of the parameter on the query parameter form. DE constructs the query parameter form from the array elements, placing the first element at the top of the query parameter form and the last element at the bottom of the query parameter form. The relative positions of the elements in the parameter array determine the position of the parameters between the first and last parameters on the query parameter form.

Anatomy of the query parameter form properties

The properties of the query parameter form determine the layout, title and behaviour of the form. Figure 19 (page 41) shows an example of a query parameter form.

Figure 19: Query Parameter Form Properties

The title property becomes the title at the top of the form and the width defines the horizontal aspect of the query parameter form.

Table 5 (page 42) describes the properties that control the query parameter form.

Table 5: Query Parameter Form Properties

Properties	Description
Title	Defines the title that DE will use for the query parameter form
Width	Size of the query parameter form in pixels
Prompt	The prompt determines the behaviour of the query parameter form. False: DE will not show the query parameter form, unless the query filter includes parameters. True: Forces DE to show the query parameter form every time the query runs.
Parameters	Indicates the inclusion of the parameter array

DE will not show the query parameter form for queries without parameters unless the value of the prompt property is true.

Anatomy of the query parameter properties

Each parameter has a set of properties that determine the appearance of the parameter on the query parameter form and the behaviour for accepting parameter values. Figure 20 (page 42) shows the relationship between the parameter properties and their appearance on the query parameter form.

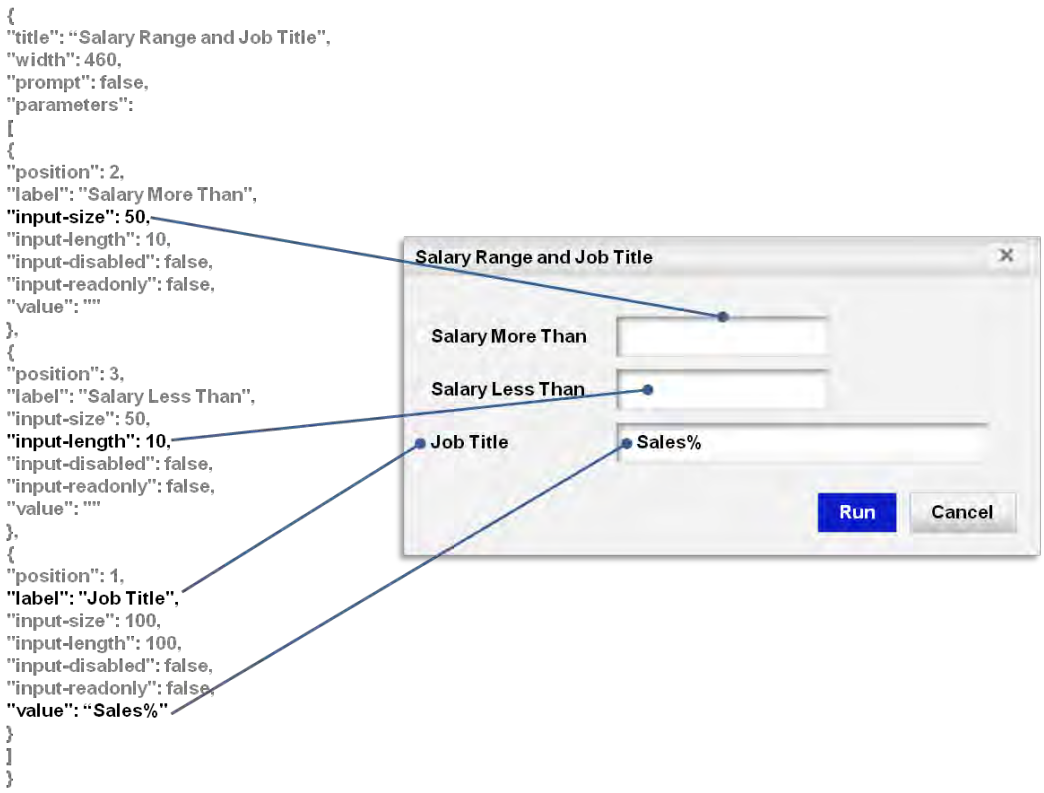

Figure 20: Query Parameter Properties on a Query Parameter Form

Table 6 (page 43) provides an explanation of each property.

Table 6: Query Parameter Properties

Properties	Description
Position	Defines the relative position of the parameter in the SQL statement, indicated by the placement of the question marks. Moving from left to right along the SQL statement, position 1 is the first parameter, position 2 is the second parameter and so on. This property does not determine the placement of the parameter on the query parameter form.
Label	The label is a name to describe the parameter.
Input size	Input size determines the width of the text box for the parameter on the query parameter form.
Input length	Input length sets the number of characters allowed in the parameter value (including spaces).
Input disabled	Input disabled determines whether you can change the value of the parameter. False: allows you to change the value. True: prohibits all changes. Set input disabled to true for query filters where you want to see the parameter but not be able to change the value of the parameter.
Input read only	Input read only determines whether you can tab to the property, highlight and copy the value of the parameter. False: allows you to copy the value of the parameter. True: prohibits access to the value of the parameter.
Value	Sets the value for the parameter. A default value is optional and null is acceptable. Use a default value to illustrate how to use the parameter.

Table 7 (page 43) explains the role and use of the input disabled and input read-only properties. These properties are equivalent to the HTML input attributes.

Table 7: HTML Disabled and Read Only Attributes

HTML Attributes	Description
Disabled	The disabled attribute prevents any use of an input element. You cannot use or click on a disabled input element (or field).
Read-only	This attribute specifies that an input field should be read-only. Read-only fields cannot be modified. You can tab to it, highlight it, and copy the text from the input field.

For more information about HTML attributes refer to an authority on HTML. The HTML reference at http://www.w3schools.com is an example.

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Table filters

Search criteria

Figure 21 (page 44) shows the edit tab for a table filter and highlights the search criteria.

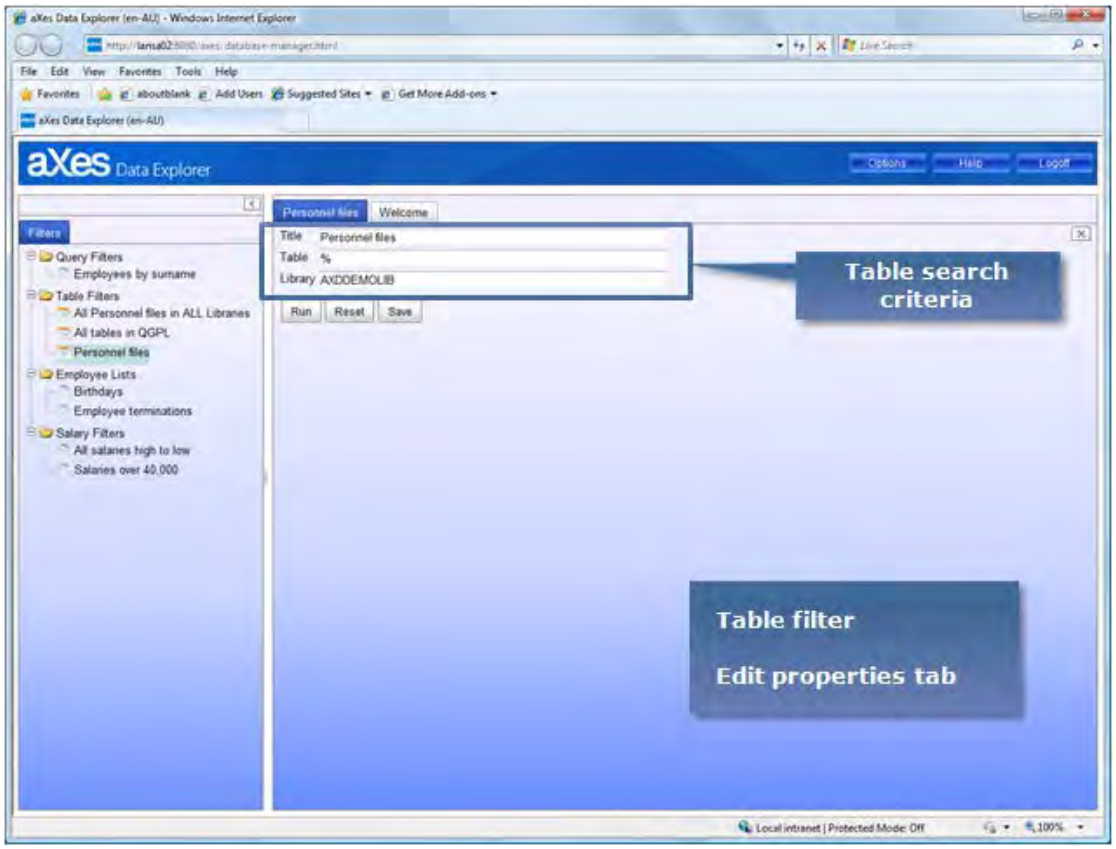

Figure 21: Table Filter Search Criteria

DE uses the table name and library name properties as the search criteria when searching for tables. You may use a combination of these properties when searching for tables.

Table 8: Table Filter Questions and Answers

Questions	Answers
Do I need to save a table filter to search for tables?	No. You can create a table filter, perform the search, and select a table from the search results as one task. If you do not want to keep the table filter, close the result tab.
Can I search for tables with the same name in multiple libraries?	Yes. Set the search criteria as the table name and use the percentage (%) character as the library name.
Can I search for all tables in a specific library?	Yes. Set the search criteria as the library name and use the percentage (%) character as the table name.

Refresh table search results

Right clicking on empty space on the search results tab will open a floating menu.

Choose the Refresh option to have DE refresh the table search results.

Properties

Table 9 (page 45) defines the properties of table filters.

Column one is the property name, column two defines the searchable properties and column three describes the way DE uses the property.

Table 9: Table Filter Properties

Properties	Search	Description
Library	Yes	Full name Partial name with a % A % alone implies any library name
Table	Yes	Full name Partial name with a % A % alone implies any table name
Title	No	Provide a title for the table filter. The title is the name you see in the Filters pane.

The search criteria conventions DE uses when you define searches for tables follows the conventions for partial names and wildcards implemented by the IBM i operating system. The percentage character (%) is a wildcard.

File types available to query filters

DE will search for the file types defined in Table 10 (page 45).

Table 10: File Types Available for Query

File types	Search	Description
Indexes	Yes	Refer to an index by library and file name.
Logical	Yes	Refer to logical files by library and file name.
Physical	Yes	Refer to physical files by library and file name.
Table	Yes	Refer to tables by library and file name.
View	Yes	Refer to a view by library and file name.

Running filters at start-up

One of the options on the filters floating menu sets the filter to run when DE starts. This is the only way to set the start-up filter. DE will run only one filter when it starts. If you want to change the start-up filter, choose the filter you want to run at start-up and DE will remove the original start-up filter and replace it with your new choice.

To stop any filter running automatically when DE starts, use the Clear Startup Filter button on the Options tab.

Running a filter when DE starts may take some time, depending on the selection criteria described in the query filter and the size of the tables read by the query. You can take no other action while the filter runs. You should decide whether it is better for you to run the filter automatically and wait when DE starts, or have immediate access to DE and open the filter yourself.

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Folders

Why use folders?

DE recognises that you might want to save query filters and table filters and use them again. Folders provide places for you to save the filters.

Multiple folders will help you find saved filters. They provide a way to organise filters into subject matter groups. DE provides two default folders, Table Filters and Query Filters.

Folder questions and answers

Table 11 (page 46) presents questions and answers about folders.

Table 11: Folder Questions and Answers

Questions	Answers
Can I save all filters in one folder?	Yes. However, finding filters will become more difficult as your collection of filters grows. You will need precise conventions for naming your filters. The alternative is to create additional folders.
Can I undelete folders?	No. Deleting a folder removes both the folder and the filters saved in the folder. DE provides no undelete method.
Can I move a folder?	No. The folder title determines the position of the folder in the folder structure. DE sorts folders alphabetically by the folder title.
Is there a limit to the number of folders?	DE imposes no limit to the number of folders.
What happens to the filters in a folder when I delete the folder?	Deleting a folder deletes all filters saved in the folder and the folder itself. If you want to delete a folder but retain the filters, move the filter(s) to another folder before deleting the folder.
What is the maximum number of characters allowed in folder titles?	Eighty (80) characters, including spaces.

How to register to use DE

DE provides access to database tables on IBM i servers. Registration ensures that only authorised persons may use DE to query the database tables.

Before you can use DE your administrator must register your user identification.

DE provides administrators with an option to register users automatically. You do not need to register if your administrator allows automatic registration.

You always need a user identification and password to log on and use DE.

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Options

The Options tab allows you to control the way DE behaves.

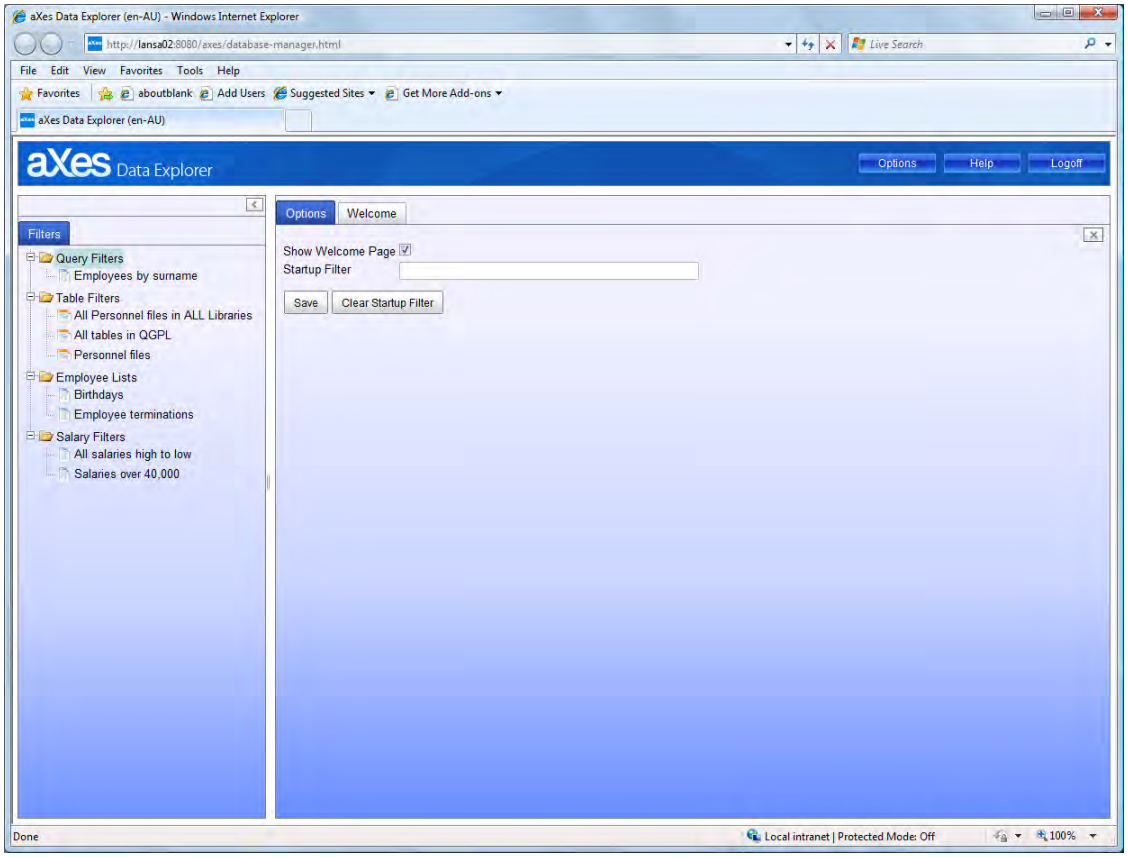


Figure 22: Options Tab

The Options tab is where you control the behaviour of the Welcome page, view the name of the filter that runs when DE starts and clear the start-up filter.

Options tab

To open the Options tab:

1.	Click the button labelled Options
2.	Wait until DE displays the Options tab.
3.	Once the Options tab is in view you can change any of the available options.

The Options button resides at the top of the page on the right-hand side.

Welcome page

Page content

The Welcome page is the default page displayed when you start DE.

The Welcome page will show each time DE starts unless you choose to hide it.

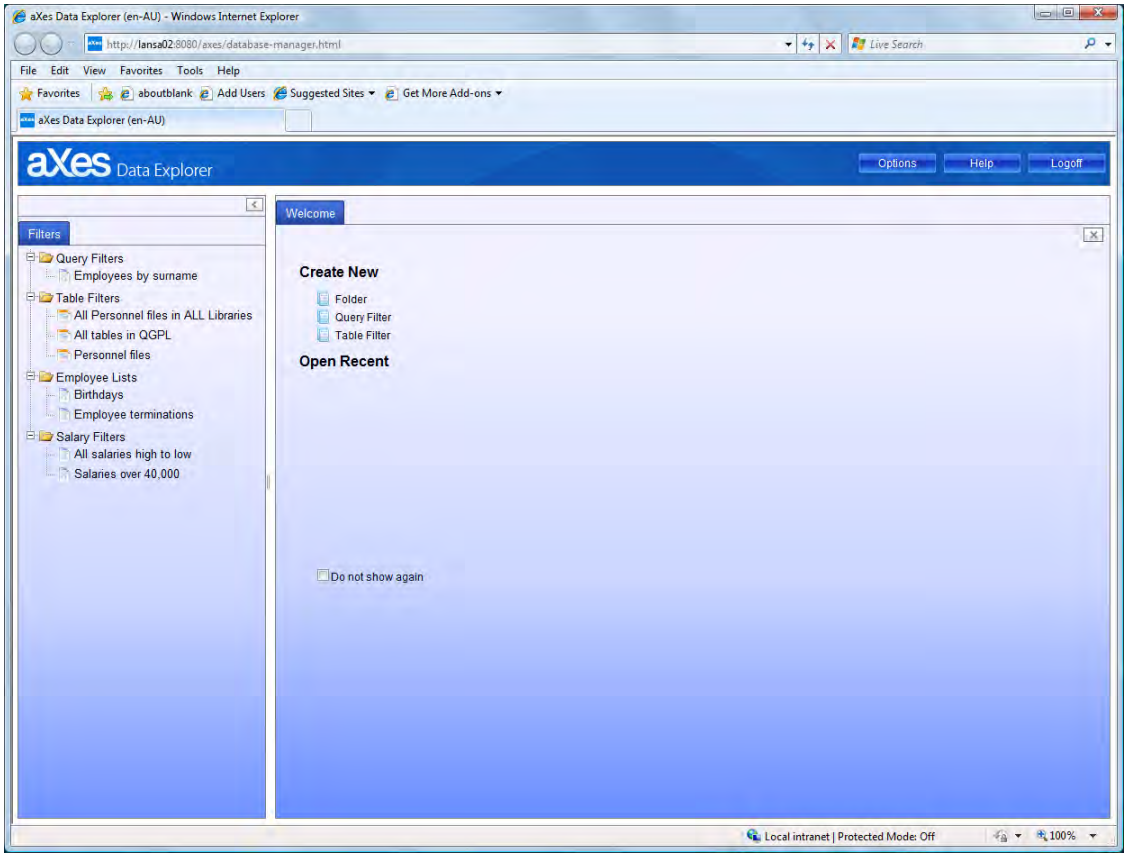


Figure 23: Welcome Page

The Welcome page consists of a tab showing a list of the recently used filters, options for creating folders and filters and links to the documentation.

Create New	Click on Folder to create a folder. Click on Query Filter to create a query filter that will select data from tables. Click on Table Filter to create a table filter and search for tables.
Open Recent	Open Recent is a list of recently used filters (both query ad table filters). Clicking on a filter in the list will open the edit tab and run the query or table search.

Hide the Welcome page

If you prefer not to see the Welcome page each time you start DE, tick the box adjacent to "Do not show again". This action will turn off the Welcome page and it will not show the next time DE starts.

Close the Welcome page by pressing the Close icon ☒ located at the top right of the Welcome page tab.

Show the Welcome page

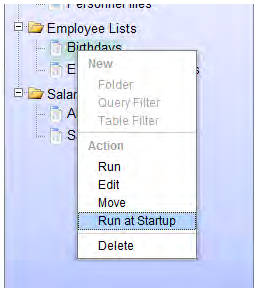
If the Welcome page is turned off and you want to see the Welcome page, turn the Welcome page on from the Options tab. Click the Options button at the top of the page and click the box adjacent to the Show Welcome Page label so that it shows a tick (☑) image.

Run a filter automatically when DE starts

Run a filter when DE starts

To run a filter immediately when DE starts, set the start-up action for the filter you want to run. To run a filter when DE starts:

1.	In the filters pane click on a filter name.
2.	From the floating menu choose Action - Run at Startup.
3.	DE will change the filter name on the Options tab



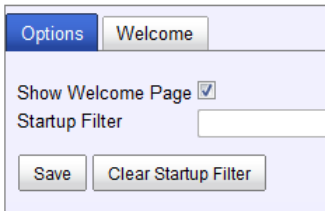
In this example, DE will run the highlighted query filter.

DE will run only one filter when it starts.

Stop a filter running when DE starts

To stop a filter running when DE starts, clear the start-up filter:

1.	Press the button labelled Options.
2.	Wait until DE displays the Options tab.
3.	Press the Clear Startup Filter button.
4.	Wait until DE asks you to confirm the clear.
5.	Answer Yes to clear the start-up filter. Answer No and DE will not clear the start-up filter.



Start-up filter restrictions

At start-up DE will run:

One query filter	The nominated query filter will run when DE starts.
One table filter	The nominated table filter will run when DE starts.
No filter	No filter will run when DE starts.

These actions are mutually exclusive.

You cannot change the start-up filter by editing the name of the filter on the Options tab.

Query data

Query data is the data retrieved from tables by query filters.

Table 12 (page 50) contains questions and answers related to query data.

Table 12: Query Data Questions and Answers

Questions	Answers
Can I keep the content of multiple queries open simultaneously?	Yes. DE opens a new results tab each time you display query data. You can leave the tabs open while you perform other table searches or run query filters. It is your responsibility to close the open tabs.
Can I copy query data?	Yes. Select the text in the view query data window copy the selected text (hold Ctrl and press C), then paste the query data into another application.
Can I copy query data to the clipboard?	Yes. DE provides a menu option for copying query data to the clipboard. You can paste the query data into another application from the clipboard (Microsoft Excel is an example). The other application must be capable of using the clipboard.

Copy and paste query data

Copying and pasting query data may produce unexpected results with different applications. You must verify the capabilities of the application to manage data pasted from the clipboard. For example, you may have to use Paste Special and then choose unformatted text option to achieve your desired result.

View query data

DE provides several options for viewing query data. Table 13 (page 50) explains what you see with each option and suggests why and when you might choose a particular option.

Table 13: Options for Viewing Query Data

Display As	What You See and When to Use the Display
Query data grid on the query result tab	DE presents the query data as rows in a grid displayed on a results tab in the right hand pane. Use this option when you want to browse the query data retrieved by the query filter.
Tab separated values (TSV)	DE converts query data to TSV format. Suppose the SQL statement, SELECT surname, first_name, start_date, annual_salary FROM employees retrieves the following data: Surname | First Name | Start Date | Annual Salary Smith | John | January 1 | 45,000 DE will convert this data to TSV as: “Smith” → ”John” → ”January 1” → ”45000” Use this option when you want to convert the query data to a format compatible with import capabilities of other applications such as Microsoft Excel.

About SQL

DE uses SQL as implemented by IBM DB2 on IBM i servers.

Consult the IBM i Information Center for information about SQL capabilities and syntax (DB2 for i5/OS SQL Reference).

Supported and unsupported SQL clauses

DE supports the SQL clauses listed in Table 14 (page 51).

Table 14: Supported SQL Clauses

SQL Clauses	Comments
SELECT	DE supports this clause
SELECT ALL	DE supports this clause
SELECT DISTINCT	DE supports this clause

DE does not support the SQL clauses listed in Table 15 (page 51).

Table 15: SQL Clauses Not Supported

SQL Clauses	Comments
CREATE	DE does not support any of the CREATE clause variations, including: ALIAS, FUNCTION, INDEX, PROCEDURE, SCHEMA, SEQUENCE, TABLE, TRIGGER, TYPE, VIEW,
DELETE	DE does not support this clause
INSERT	DE does not support this clause
SELECT INTO	DE does not support this clause
UPDATE	DE does not support this clause

DE does not support any table management or data manipulation clauses.

SQL parsing rules

DE checks the SQL in query filters using the rules described in Table 16 (page 51).

Table 16: SQL Parsing Rules

Rule	Comments
Look for “SELECT”	The SELECT clause must be the first item in the SQL for the query filter. If SELECT is not the first item, DE will reject the SQL and the query will not run.

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Rule	Comments
SQL includes " INTO "	DE will scan the SQL in the query filter looking for the string "INTO" (that is, <space>INTO<space>). The DE configuration parameter, "allow.query.clause.into" controls the action DE will take when the SQL includes "INTO". When "allow.query.clause.into" is false, DE will reject the SQL. When "allow.query.clause.into" is true, DE will accept the SQL. For example, SELECT FLDINTEGER, 'A INTO B' AS "D INTO E" FROM DEVJSM.TEST is acceptable when "allow.query.clause.into" is true. Your administrator will set the rules for using INTO in your queries.

Terminology for files: SQL and IBM i differences

SQL and IBM i refer to files using different terms. Table 17 (page 52) describes the differences.

Table 17: Terminology Differences between SQL and IBM i for Files

SQL term	Traditional file access term
Schema: A group of related objects that consists of a library, a journal, a journal receiver, an SQL catalogue, and an optional data dictionary. A schema enables the user to find the objects by name. Another name for a schema is collection.	Library: A group of related objects that enables the user to find the objects by name.
Table: A set of columns and rows.	Physical file: A set of records.
Row: The horizontal part of a table containing a serial set of columns.	Record: A set of fields.
Column: The vertical part of a table of one data type.	Field: One of more bytes of related information of one data type.
View: A subset of columns and rows of one or more tables.	Logical file: A subset of fields or records of up to 32 physical files.
Index: A collection of data in the columns of a table, logically arranged in ascending or descending order.	Index: A type of logical file.

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Section 6 - Using Classic Data Explorer

This section provides information about using the Classic Data Explorer to view and manipulate data in relational databases from your browser. Please note that Classic Data Explorer has been superseded and it is recommended to use DE.

Starting a Classic Data Explorer Session

To start a Classic Data Explorer session, specify the system name and port, if other than 80.

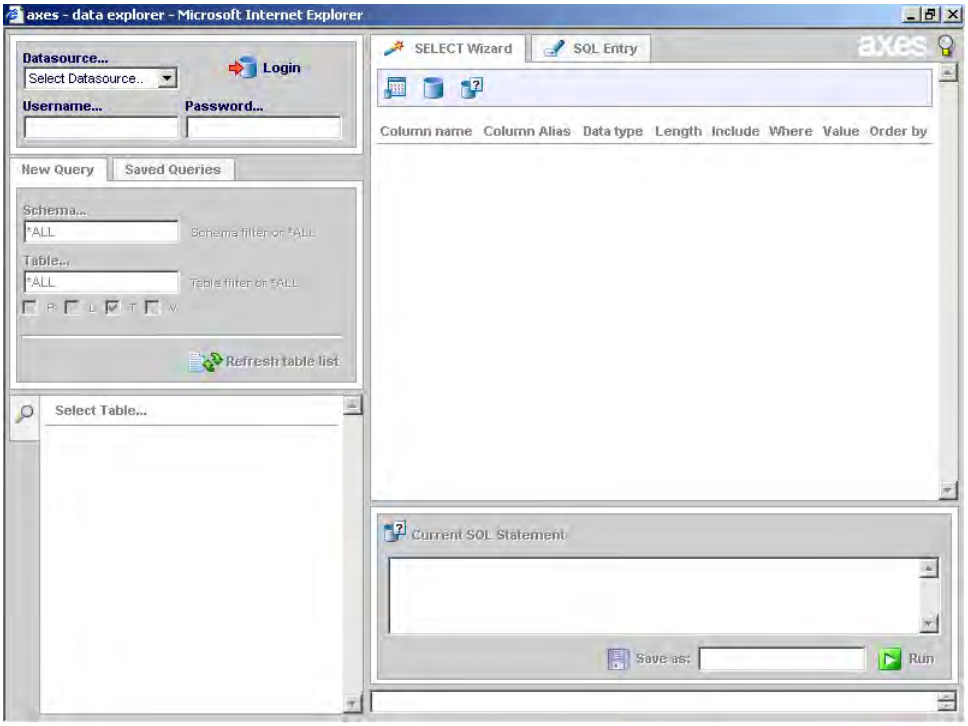
Specify a URL in the form:

http://system:port/axesde

Where **system** is the name of your IBM i server and **port** is the port on which the aXes Application Server is listening.

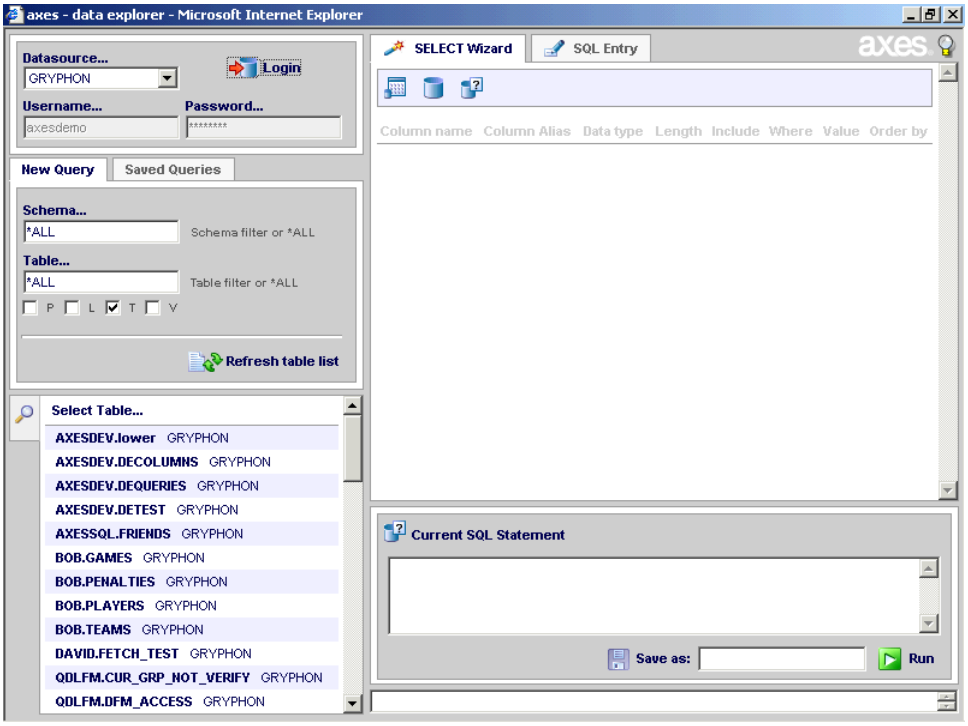
The port number is required only if it is not 80.

The main Classic Data Explorer session panel screen contains a logon panel in the top-left corner. Select one of the available data sources, type the user profile name and password for that data source, and click the login icon (or press Enter).



If the logon attempt fails, messages will be displayed in the message area. Use the scroll bar to read all the messages. Only the login panel will be enabled until a successful login occurs.

A successful logon will enable the Query panel, Table list panel, and the SQL panels. A list of database tables will be displayed. Note that the default filter selects SQL tables which will not include DDS physical files. You can change the filter criteria and refresh the list to include other file types such as views and logical files.



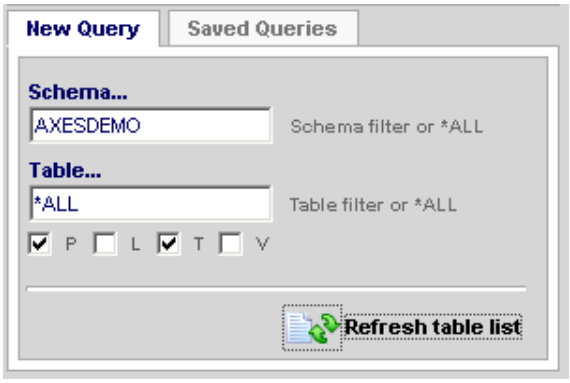
aXes Classic Data Explorer Server uses SQL because it can connect to databases other than DB2/400. A table is equivalent to a file and a view is equivalent to a non-keyed logical file.

Filtering Lists

You can filter the list of tables by schema and table name. These fields are case-sensitive because other databases allow mixed-case names.

If you are connected to your IBM i server and you filter by schema axesdemo the list will be empty. Specify AXESDEMO and the tables will be found and listed.

You can also filter the list by object type using the check boxes. The key values have the following meanings:



P = Physical file

L = Logical file

T = SQL table

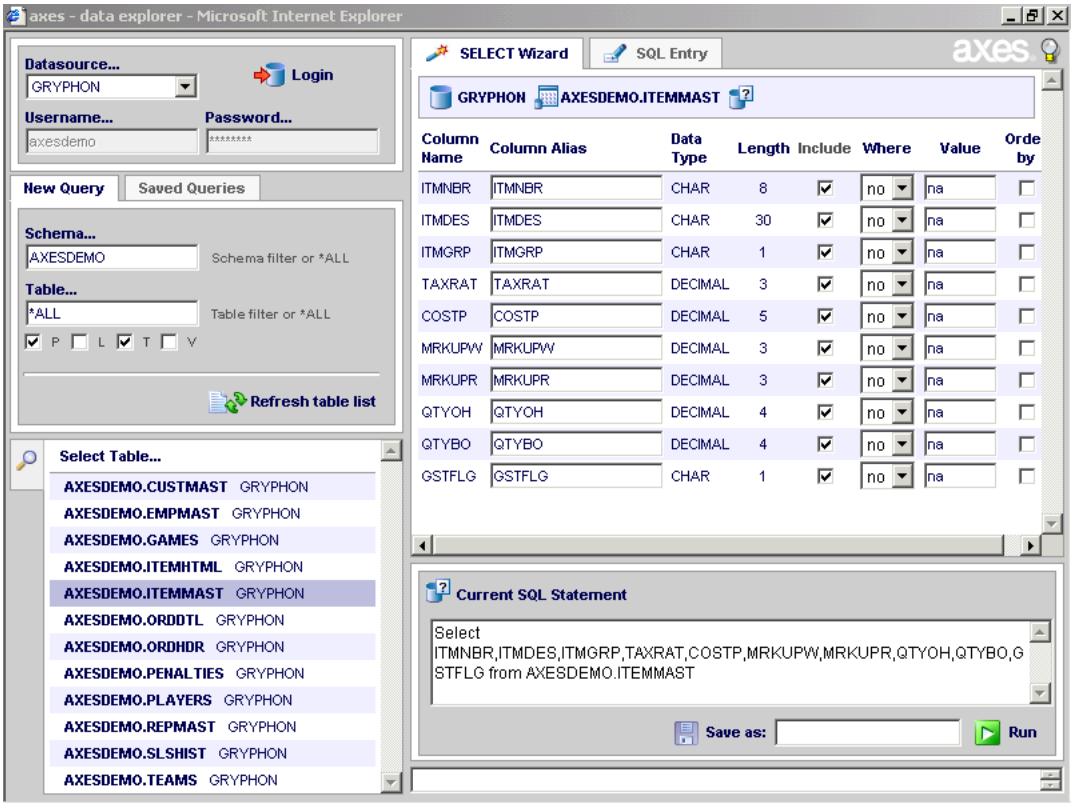
V = SQL view

Click the Refresh table list button to apply the filter to the list.

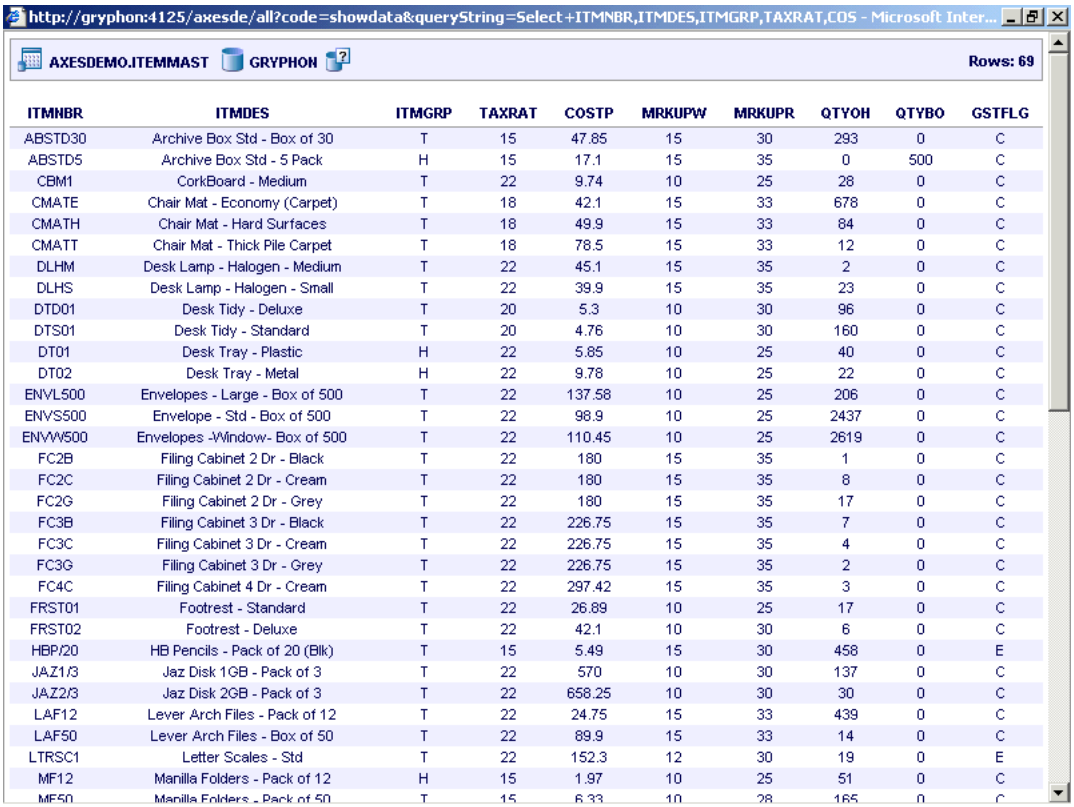
You can create a new query using the Select Wizard, run previously defined queries from the Saved Queries tab, or run any SQL statement using the SQL Entry tab.

Select Wizard

When you select a table from the list the Select Wizard will list the columns in the table. You can change the column name, add selection criteria, and specify the result set order.



As you make changes in the Select Wizard the Current Query panel displays the current SQL statement. If you want to save the query definition type a name for the query in the box and click the Save as button. When you are happy with your changes click the Run button. A new window will open which will contain the result set from the query.



ITMNBR	ITMDES	ITMGRP	TAXRAT	COSTP	MRKUPW	MRKUPR	QTYOH	QTYBO	GSTFLG
ABSTD30	Archive Box Std - Box of 30	T	15	47.85	15	30	293	0	C
ABSTD5	Archive Box Std - 5 Pack	H	15	17.1	15	35	0	500	C
CBM1	CorkBoard - Medium	T	22	9.74	10	25	28	0	C
CMATE	Chair Mat - Economy (Carpet)	T	18	42.1	15	33	678	0	C
CMATH	Chair Mat - Hard Surfaces	T	18	49.9	15	33	84	0	C
CMATT	Chair Mat - Thick Pile Carpet	T	18	78.5	15	33	12	0	C
DLHM	Desk Lamp - Halogen - Medium	T	22	45.1	15	35	2	0	C
DLHS	Desk Lamp - Halogen - Small	T	22	39.9	15	35	23	0	C
DTD01	Desk Tidy - Deluxe	T	20	5.3	10	30	96	0	C
DTS01	Desk Tidy - Standard	T	20	4.76	10	30	160	0	C
DT01	Desk Tray - Plastic	H	22	5.85	10	25	40	0	C
DT02	Desk Tray - Metal	H	22	9.78	10	25	22	0	C
ENVL500	Envelopes - Large - Box of 500	T	22	137.58	10	25	206	0	C
ENVS500	Envelope - Std - Box of 500	T	22	98.9	10	25	2437	0	C
ENVW500	Envelopes -Window- Box of 500	T	22	110.45	10	25	2619	0	C
FC2B	Filing Cabinet 2 Dr - Black	T	22	180	15	35	1	0	C
FC2C	Filing Cabinet 2 Dr - Cream	T	22	180	15	35	8	0	C
FC2G	Filing Cabinet 2 Dr - Grey	T	22	180	15	35	17	0	C
FC3B	Filing Cabinet 3 Dr - Black	T	22	226.75	15	35	7	0	C
FC3C	Filing Cabinet 3 Dr - Cream	T	22	226.75	15	35	4	0	C
FC3G	Filing Cabinet 3 Dr - Grey	T	22	226.75	15	35	2	0	C
FC4C	Filing Cabinet 4 Dr - Cream	T	22	297.42	15	35	3	0	C
FRST01	Footrest - Standard	T	22	26.89	10	25	17	0	C
FRST02	Footrest - Deluxe	T	22	42.1	10	30	6	0	C
HBP/20	HB Pencils - Pack of 20 (Blk)	T	15	5.49	15	30	458	0	E
JAZ1/3	Jaz Disk 1GB - Pack of 3	T	22	570	10	30	137	0	C
JAZ2/3	Jaz Disk 2GB - Pack of 3	T	22	658.25	10	30	30	0	C
LAF12	Lever Arch Files - Pack of 12	T	22	24.75	15	33	439	0	C
LAF50	Lever Arch Files - Box of 50	T	22	89.9	15	33	14	0	C
LTRSC1	Letter Scales - Std	T	22	152.3	12	30	19	0	E
MF12	Manilla Folders - Pack of 12	H	15	1.97	10	25	51	0	C
MF50	Manilla Folders - Pack of 50	T	15	6.33	10	28	165	0	C

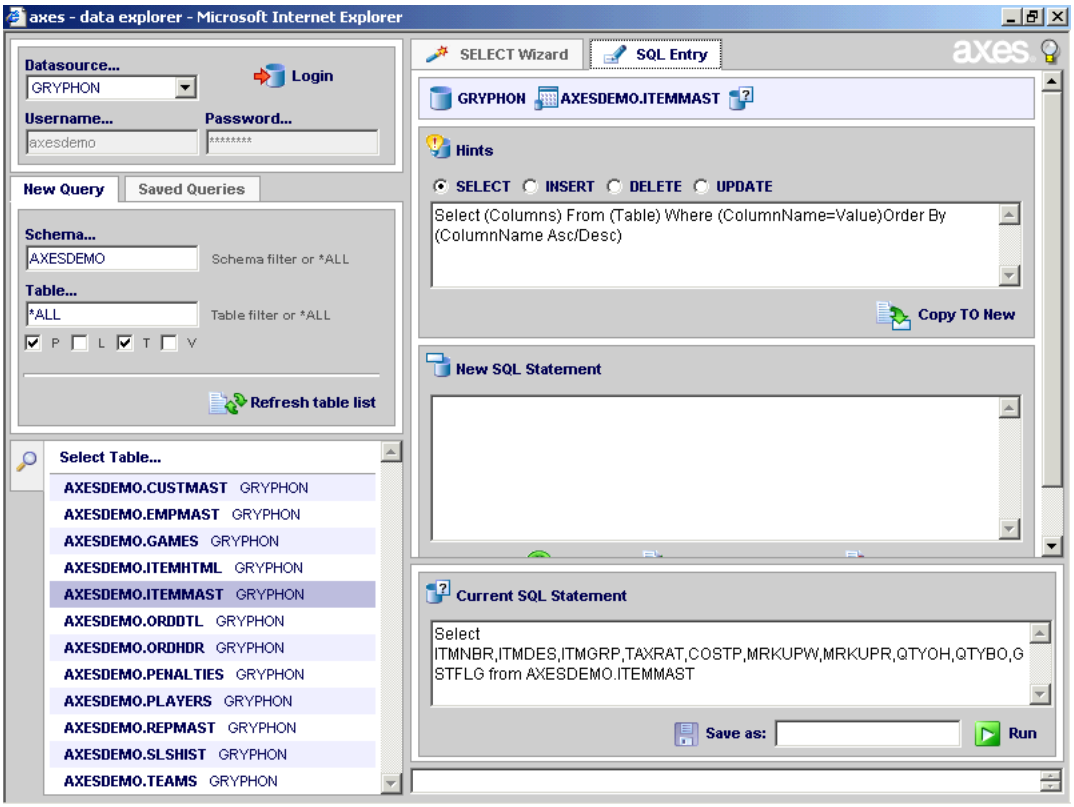
If you have Microsoft Office installed you can right-click on the result set window and import the result set directly into Excel.

ITMNBR	ITMDES	ITMGRP	TAXRAT	COSTP	MRKUPW	MRKUPR	QTYOH	QTYBO	GSTFLG
ABSTD30	Archive Box Std - Box of 30	T	15	47.85	15	30	293	0	C
ABSTD5	Archive Box Std - 5 Pack	H	15	17.1	15	35	0	500	C
CBM1	CorkBoard - Medium	T	22	9.74	10	25	28	0	C
CMATE	Chair Mat - Economy (Carpet)	T	18	42.1	15	33	678	0	C
CMATH	Chair Mat - Hard Surfaces	T	18	49.9	15	33	84	0	C
CMATT	Chair Mat - Thick Pile Carpet	T	18	78.5	15	33	12	0	C
DLHM	Desk Lamp - Halogen - Medium	T	22	45.1	15	35	2	0	C
DLHS	Desk Lamp - Halogen - Small	T	22	39.9	15	35	23	0	C
DTD01	Desk Tidy - Deluxe	T	20	5.3	10	30	96	0	C
DTS01	Desk Tidy - Standard	T	20	4.76	10	30	160	0	C
DT01	Desk Tray - Plastic	H	22	5.85	10	25	40	0	C
DT02	Desk Tray - Metal	H	22	9.78	10	25	22	0	C
ENVL500	Envelopes - Large - Box of 500	T	22	137.58	10	25	206	0	C
ENVS500	Envelope - Std - Box of 500	T	22	98.9	10	25	2437	0	C
ENVW500	Envelopes -Window- Box of 500	T	22	110.45	10	25	2619	0	C
FC2B	Filing Cabinet 2 Dr - Black	T	22	180	15	35	1	0	C
FC2C	Filing Cabinet 2 Dr - Cream	T	22	180	15	35	8	0	C
FC2G	Filing Cabinet 2 Dr - Grey	T	2			35	17	0	C
FC3B	Filing Cabinet 3 Dr - Black	T	2			35	7	0	C
FC3C	Filing Cabinet 3 Dr - Cream	T	2			35	4	0	C
FC3G	Filing Cabinet 3 Dr - Grey	T	2			35	2	0	C
FC4C	Filing Cabinet 4 Dr - Cream	T	2			35	3	0	C
FRST01	Footrest - Standard	T	2			25	17	0	C
FRST02	Footrest - Deluxe	T	2			30	6	0	C
HBP/20	HB Pencils - Pack of 20 (Blk)	T	1			30	458	0	E
JAZ1/3	Jaz Disk 1GB - Pack of 3	T	2			30	137	0	C
JAZ2/3	Jaz Disk 2GB - Pack of 3	T	2			30	30	0	C
LAF12	Lever Arch Files - Pack of 12	T	2			33	439	0	C
LAF50	Lever Arch Files - Box of 50	T	2			33	14	0	C
LTRSC1	Letter Scales - Std	T	2			30	19	0	E
MF12	Manilla Folders - Pack of 12	H	1			25	51	0	C
MF50	Manilla Folders - Pack of 50	T	1			28	165	0	C
MHDSSB	Boxed Staples for H/D Stapler	T	2			25	42	0	C
MHDS99	Heavy Duty Stapler	T	2			25	9	0	C
PB50B	Pens - Box of 50 - Blue	T	2			25	65	0	E
PB50K	Pens - Box of 50 - Black	T	2			25	0	250	E
PB50R	Pens - Box of 50 - Red	T	2			25	159	0	E
PC011	Paper Clip - Medium - 100	H	2			30	279	0	C
PC012	Paper Clips - Large - 100	H	2			30	410	0	C
P3B	Pens - 3 Pack - Blue	H	22	2.12	8	25	586	0	E
P3K	Pens - 3 Pack - Black	H	22	2.12	8	25	149	0	E
P3R	Pens - 3 Pack - Red	H	22	2.12	8	25	1053	0	E

If the file you are querying contains embedded HTML the HTML will be formatted in the browser.

Advanced SQL

The SQL Entry panel lets you define any SQL statement. Hints are provided for the common SELECT, INSERT, DELETE, and UPDATE statements but you can run other SQL statements such as GRANT or ALTER TABLE as provided that you are authorised to the underlying database objects.



You can copy a hint to the New Statement text area by clicking the Copy TO New icon. Edit the SQL statement and make it current by clicking the Copy TO Current icon. Click the Run icon to run the SQL statement.

Using Multi-member Files

IBM i database files are containers for members and the members are containers for the data. Many IBM i applications use multi-member files to separate data, for example by company, or by month for history data.

An SQL table is a container for data and has no concept of multi-member files. To SQL, each member in a multi-member file is a discrete table (or file). SQL does not understand the file/member naming convention used by IBM i servers.

To query a specific member of a multi-member file using Data Explorer you must create an SQL alias that references the desired member. The alias provides a unique name for the member. For example:

```
CREATE ALIAS AXESDEMO.JANSALES FOR AXESDEMO.SALESHST (JAN2004)
```

You can run the CREATE ALIAS statement using the aXes Data Explorer Entry panel, iSeries Navigator's SQL interface, or the Start SQL (STRSQL) interface.

Once the alias has been created you can select it from the list of tables and treat it just like a real table or view.

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Appendices

Glossary

Table 18 presents definitions for abbreviations and terms used in this guide.

Table 18: Glossary of Abbreviations and Terms

Abbreviations and Terms	Definitions and Explanations
Data selection criteria	The term "data selection criteria" refers to the SQL defined in a query filter.
DE	aXes Data Explorer
Files	The IBM i refers to data residing on disks as files. SQL uses the word table. This guide follows the SQL convention.
Filter	DE uses the word "filter" to describe a collection of search criteria when searching for tables and selection criteria for queries.
Queries	Queries describe the selection criteria inherent in SQL statements.
Query data	Query data refers to data sets produced by running query filters. A data set contains data that matches the selection criteria specified in the query filter. The query data consists of data retrieved from database tables.
Search criteria	The search criteria determine what DE looks for when searching for tables. Suppose you want a list of tables in the QGPL library, the search criteria is a specific library and any table. You express the search criteria as library "QGPL" and table name like "Q%" (to find tables in QGPL whose names begin with the letter Q).
Selection criteria	The selection criteria determine the rules used by queries when retrieving data from tables. DE uses SQL to express the selection criteria.
SQL	Structured Query Language (SQL) is the language used to interrogate relational databases. An example of an SQL query is: SELECT surname, first_name, start_date, annual_salary FROM employees WHERE annual_salary < 50000 ORDER BY start_date This SQL selects employees whose annual salary is less than $50,000 and sequences the query data by the date the employee started with the company. The query data consists of surname, first name, start date and annual salary.
SQL clause	SQL clauses are elements in an SQL statement. Examples are SELECT, FROM, WHERE and ORDER BY.

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Abbreviations and Terms	Definitions and Explanations
SQL statement	SQL statements refer to the whole set of SQL used for query filters. SELECT * FROM axdemolib/employees is an example of an SQL statement.
Table	The IBM i refers to data residing on disks as files. SQL uses the word table. This guide follows the SQL convention.

Assumed and prerequisite knowledge

This guide provides no tutorial for creating databases or SQL. Table 19 defines the prerequisite knowledge needed to use the guide.

Table 19: Assumed and Prerequisite Knowledge

Subject Matter	Explanations
Libraries	The guide assumes that you understand the concepts behind libraries for IBM i servers.
Query concepts	The guide assumes that you understand the concepts behind querying tables in databases on IBM i servers.
SQL	The guide assumes that you understand how to create SQL, especially for cases when you need complex SQL (examples are joining tables and complicated WHERE clauses).
Tables and files	The guide assumes that you understand the concepts behind tables (or files) on IBM i servers, including physical files, logical files and views.
Using the clipboard	You need to know how to use the clipboard for copying and pasting data between applications.

Browser behaviour differences

Every browser is different. Browser manufacturers implement components such as JavaScript, DOM, HTML, CSS, event handling and network connectivity in different ways. Therefore, DE will vary in its appearance and behaviour depending on the browser you use. Examples of these differences are as follows.

- Slight variations in the way the pages look.
- Differences in behaviour.
  For example, some browsers stop running animated GIF files after a short period.
- Network activity will vary.
  Some browsers will wait longer for responses.

Browser behaviour can change from one version to the next. Each browser is on a different enhancement timeline. Some vendors implement new features and bug fixes quickly.

Performance differences will be more noticeable when you run spooled file filters or output queue filters that take a long time to finish.

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Workstation requirements

This section describes prerequisites and system requirements for running DE on your computer or mobile device.

Hardware

Devices with a faster processor and more memory will provide better performance.

DE requires no disk space other than the cache used by the browser.

Software

To use DE you need one of the supported browsers and apart from the operating system no other software is necessary.

Connectivity

To use WSFM you need a TCP/IP connection to an IBM i server from an internal network or the Internet.

References

Table 20 (page 60) defines documents and information sources referenced in this guide.

Table 20: Referenced Documents and Information Sources

References
IBM i and System i Information Center at http://publib.boulder.ibm.com/iseries/

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