




ZIM 9.10

Result Sets



What is Zim?

Zim is



a complete framework to develop and run professional and mission critical applications by tightly integrating a lean relational database, a powerful Fourth Generation Language, an integrated development tool, the integration with outside world and client user interfaces.



Result Sets

The Result Set is an image of the selected records that can be accessed at any time after it is created using the given Set Name .

**FIND All Employees **
where CityCode = 'OTT' -> sOTT

List All sOTT

ENum	Name	Salary	DeptCode	CityCode	HireDate	Monthly Salary
2	Mark Hirudsa	62,000.00	R&D	OTT	1998/12/12	5,166.67
3	Frank Copolla	38,000.00	R&D	OTT	1997/12/08	3,166.67
7	Mark Chapman	102,000.00	SAL	OTT	1998/04/21	8,500.00
13	Alex Sander	I AM NULL	R&D	OTT	1997/09/12	I AM NULL
14	Lucy MArkham	33,300.00	MKT	OTT	1998/11/09	2,775.00
15	Karin Lalonde	18,600.00	R&D	OTT	1996/12/07	1,550.00



Operations Over Result Sets

Although Result Sets are only a “vision” of the real data (they are a collection of pointers to the actual rows of data), they can be used as they were normal entity sets.

**List All sOTT where HireDate > 19980101 **
Sorted by DeptCode Name

ENum	Name	Salary	DeptCode	CityCode	HireDate	Monthly Salary
14	Lucy MArkham	33,300.00	MKT	OTT	1998/11/09	2,775.00
2	Mark Hirudsa	62,000.00	R&D	OTT	1998/12/12	5,166.67
7	Mark Chapman	102,000.00	SAL	OTT	1998/04/21	8,500.00

Navigating in a Set

List All sOTT

Top	→	Current	→	2 Mark Hirudsa	62,001.00	R&D	OTT	1998/12/12	5,166.75
				3 Frank Copolla	38,001.00	R&D	OTT	1997/12/08	3,166.75
				7 Mark Chapman	102,001.00	SAL	OTT	1998/04/21	8,500.08
				13 Alex Sander		R&D	OTT	1997/09/12	
				14 Lucy Markham	33,301.00	MKT	OTT	1998/11/09	2,775.08
Bottom	→			15 Karin Lalonde	18,602.01	R&D	OTT	1996/12/07	1,550.17

Bottom sOTT List All sOTT

Current	→	15 Karin Lalonde	18,602.01	R&D	OTT	1996/12/07	1,550.17
---------	---	------------------	-----------	-----	-----	------------	----------

Up 3 sOTT List All sOTT

Current	→	7 Mark Chapman	102,001.00	SAL	OTT	1998/04/21	8,500.08
		13 Alex Sander		R&D	OTT	1997/09/12	
		14 Lucy Markham	33,301.00	MKT	OTT	1998/11/09	2,775.08
		15 Karin Lalonde	18,602.01	R&D	OTT	1996/12/07	1,550.17



Set Navigation Commands

Top →	2 Mark Hirudsa	62,001.00	R&D	OTT	1998/12/12	5,166.75
	3 Frank Copolla	38,001.00	R&D	OTT	1997/12/08	3,166.75
	7 Mark Chapman	102,001.00	SAL	OTT	1998/04/21	8,500.08
	13 Alex Sander		R&D	OTT	1997/09/12	
	14 Lucy Markham	33,301.00	MKT	OTT	1998/11/09	2,775.08
Bottom →	15 Karin Lalonde	18,602.01	R&D	OTT	1996/12/07	1,550.17

TOP - Moves the current member pointer to the first member in a result set.

BOTTOM - Makes the last member of a result set the current member.

UP <n> - Moves the current member pointer one or more records "up" in a result set. Same as **PREVIOUS <n>**

DOWN<n>- Moves the current member pointer one or more members "down" in a result set. Same as **NEXT <n>**

Top sOTT
Down 5 sOTT
Up 2 sDepto

Navigating in a Set

Top →	2	Mark Hirudsa	62,001.00	R&D	OTT	1998/12/12	5,166.75
	3	Frank Copolla	38,001.00	R&D	OTT	1997/12/08	3,166.75
	7	Mark Chapman	102,001.00	SAL	OTT	1998/04/21	8,500.08
	13	Alex Sander		R&D	OTT	1997/09/12	
	14	Lucy Markham	33,301.00	MKT	OTT	1998/11/09	2,775.08
Bottom →	15	Karin Lalonde	18,602.01	R&D	OTT	1996/12/07	1,550.17

Output \$CurrentMember("sOTT")

1

Bottom sOTT

Output \$CurrentMember("sOTT")

6

Up 3 sOTT

Output \$CurrentMember("sOTT")

3

Output \$LastMember("sOTT")

6

Deleted Records and Result Sets

List ALL Departments where Name = "A"? -> sA

DeptCode	Department Name	MgrCode	Budget	Expenses
ACC	Accounting	0	1000.00	88000.00
A&D	Accessibility and Control	?????????	???????????	35000.00

Bottom sA

Delete ALL sA

Output \$Membercount

1

Top sA

List All sA

DeptCode	Department Name	MgrCode	Budget	Expenses
ACC	Accounting	0	1000.00	88000.00
?????????	???????????	???????????	???????????	???????????

*** Warning *** A member of this set has been deleted since it was first found.



Finding Records

Find All Employees -> \$CurrentSet

"ALL" is the default number of records to be selected

\$CurrentSet is the Result Set default name

Find Employees

The above commands are equivalent

Finding Records

Find commands ALWAYS generate a \$CURRENTSET

```
> Find all Employees where Salary > 50000 and NOT DeptCode IN ("MKT","R&D")
1 selected.
> List all CurrentSet
```

EName	Name	Salary	DeptCode	CityCode	HireDate	Monthly Salary
7	Mark Chapman	102,000.00	SAL	OTT	1998/04/21	8,500.00

If no set name is specified in a command, \$CURRENTSET is assumed.

```
> List all
```

EName	Name	Salary	DeptCode	CityCode	HireDate	Monthly Salary
7	Mark Chapman	102,000.00	SAL	OTT	1998/04/21	8,500.00

Finding Records

The \$CurrentSet is always the result set of the last FIND command.

But, by using a set name, this set stays valid until the end of the ZimQTC session.

```
> Find all Employees where Salary > 50000 and NOT DeptCode IN ("MKT","R&D") -> sEmp
1 selected.
> List all Currentset
```

ENum	Name	Salary	DeptCode	CityCode	HireDate	Monthly Salary
7	Mark Chapman	102,000.00	SAL	OTT	1998/04/21	8,500.00

```
>
> Find all Departments where Name = 'A'? -> sDep
1 selected.
> List all Currentset
```

DeptCode	Department Name	MgrCode	Budget	Expenses
ACC	Accounting	0	1000.00	88,000.00



Set Operations

There are three set operations performed by the FIND command:

UNION: creates a new result set containing all non-duplicated members of the participant sets.

MINUS: creates a new result set containing all members from the first set minus the corresponding members of the second set.

UNION: creates a new result set containing all common members of the participant sets.

Set Operations - Union

sMKT

1	Joseph Travolta	MKT
4	Mary Stuart	MKT
11	Marshal Winduck	MKT
14	Lucy MARKham	MKT

sRD

2	Mark Hirudsa	R&D
3	Frank Copolla	R&D
5	Nicholas Nick	R&D
10	Carl Santana	R&D
12	Larry King	R&D
13	Alex Sander	R&D
15	Karin Lalonde	R&D

Find **sMKT UNION sRD -> S2**

s2

2	Mark Hirudsa	R&D
3	Frank Copolla	R&D
5	Nicholas Nick	R&D
10	Carl Santana	R&D
12	Larry King	R&D
13	Alex Sander	R&D
15	Karin Lalonde	R&D
1	Joseph Travolta	MKT
4	Mary Stuart	MKT
11	Marshal Winduck	MKT
14	Lucy MARKham	MKT

S2

Set Operations - Minus

1 Joseph Travolta MKT
2 Mark Hirudsa R&D
3 Frank Copolla R&D
4 Mary Stuart II MKT
5 Nicholas Nick R&D
10 Carl Santana R&D
7 Mark Chapman SAL
11 Marshal Winduck MKT
12 Larry King R&D
13 Alex Sander R&D
14 Lucy Markham MKT
15 Karin Lalonde R&D
100 Elton Joseph SAL

sEMP

Semp

2 Mark Hirudsa R&D
3 Frank Copolla R&D
5 Nicholas Nick R&D
10 Carl Santana R&D
12 Larry King R&D
13 Alex Sander R&D
15 Karin Lalonde R&D

sRD

1 Joseph Travolta MKT
4 Mary Stuart II MKT
7 Mark Chapman SAL
11 Marshal Winduck MKT
14 Lucy Markham MKT
100 Elton Joseph SAL

s2

Find sEMP MINUS sRD -> S2

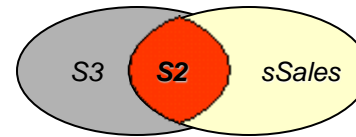
Set Operations

Find Employees where Salary > 55000 -> S55

S55			
1	Joseph Travolta	MKT	168000.00
2	Mark Hirudsa	R&D	62001.00
7	Mark Chapman	SAL	102001.00
11	Marshal Winduck	MKT	91802.01
100	Elton Joseph	SAL	130000.00

Find Employees where Dept = "SAL" -> sSales

sSales			
7	Mark Chapman	SAL	
100	Elton Joseph	SAL	



Find S3 INTERSECT sSales -> S4

7	Mark Chapman	SAL	102001.00
100	Elton Joseph	SAL	130000.00

Set Modifiers

There are three Set Modifiers

COMPLETE: during a join, relate all records from one of the objects to the result regardless of whether they satisfy the relationship condition.

List All Employees (COMPLETE) Assigned_to Projects Format \ Employees.EmpNum Name ProjName

```
1 Joseph Travolta Alpha Centaurum
1 Joseph Travolta Doors 2000
1 Joseph Travolta Balconies 99
2 Mark Hirudsa Doors 2000
2 Mark Hirudsa General Account
3 Frank Copolla General Account
4 Mary Stuart II .....
5 Nicholas Nick .....
10 Carl Santana .....
7 Mark Chapman .....
11 Marshal Winduck .....
12 Larry King Alpha Centaurum
13 Alex Sander .....
14 Lucy Markham Alpha Centaurum
14 Lucy Markham General Account
14 Lucy Markham Balconies 99
15 Karin Lalonde .....
100 Elton Joseph .....
```

Records NOT related to Projects



SMARTCONE
LEADING THE EDGE



Set Modifiers

There are three Set Modifiers

COMPLETE: during a join, relate all records from one of the objects to the result regardless of whether they satisfy the relationship condition.

**List All Employees Assigned_to Projects (COMPLETE) Format\
Employees.EmpNum Name ProjName**

```
1 Joseph Travolta Alpha Centaurum
12 Larry King Alpha Centaurum
14 Lucy MArkham Alpha Centaurum
1 Joseph Travolta Doors 2000
2 Mark Hirudsa Doors 2000
1 Joseph Travolta Balconies 99
14 Lucy MArkham Balconies 99
2 Mark Hirudsa General Account
3 Frank Copolla General Account
14 Lucy MArkham General Account
..... Voyager
```

Nobody works in Project Voyager



Set Modifiers

There are three Set Modifiers

UNRELATED: only records that do not satisfy the Relation Condition will be included in the set.

**List All Employees (UNRELATED) Assigned_to Projects Format\
Employees.EmpNum Name ProjName**

EName	Name	ProjName
4	Mary Stuart II
5	Nicholas Nick
10	Carl Santana
7	Mark Chapman
11	Marshal Winduck
13	Alex Sander
15	Karin Lalonde
100	Elton Joseph

Lists only Employees that do not work in any Projects.



Set Modifiers

There are three Set Modifiers

KEEP: after the join selection, keeps only the data for some of the related objects or table projection.

List All Employees Work_In Departments Assigned_to Projects \
KEEP DEPARTMENTS

DeptCode	Department Name	MgrCode	Budget	Expenses
MKT	Marketing	11	95111.00	157,000.00
R&D	Research and Development	10	95111.00	284,500.00

Only the Department data is kept after the join.



ZIM 9.10

Result Sets