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### Introduction

#### Effective Date (and Row End Date)

Many views in EPM contain an Effective Date (Effdt) in the "key" to the view. For these views, when changes to the data occur, rather than updating the values on an existing record, a new record is added with a new effective date. This is how history is built.

There is currently no Row End Date\* on most of the views to indicate how long a set of data is in effect. The historical nature of EPM data views with Effective Date, but without Row End Date, makes the query writer's task more complex. For example, Funding lines for a job have an Effective Date, but there is no Row End Date to identify when a funding string expires. Thus, a funding line expires only when a new funding line becomes effective.

#### -----

\* As of Oct, 2012, Row End Date exists only in the CURJOB/ALLJOB views.

### Effective Sequence

Along with the Effective Date (Effdt) field, a view may have an Effective Sequence (Effseq) field. This allows the data to have more than one change on the same day (Effdt). If there are several changes with the same Effective Date, then the rows will be numbered using the Effective Sequence field. The row with the lowest Effective Sequence number is the "first" change of the day, and the row with the highest Effective Sequence number is the "last" change of the day. In HRS job data, there is no rule that requires the change sequence numbers to begin with "zero" or increment by '1'.

Many query writers are only interested in seeing the data as it looked at the end of the day, rather than the full sequence of data entry (including typos or errors). The "last" change on a day will have the highest value in Effective Sequence (Effseq).

### **Configuration views with Effective Date and Effective Status**

Configuration views show the valid values of a code field, and the text that describes the code, along with other configuration information. Many configuration views include an Effective Status field. An Effective Status value of "A" means that the code is active on that effective date and continues to be active until there is a new Effective Date row. Additional rows can be added to change data about the configuration code, and the new rows will get a new Effective Date. However, the status of the new row as well as the old row are "A" for Active. The status value does not indicate if the "ROW" is in effect ("current") or not. The status will change to "I" for Inactive only when the code stops being allowed to be entered HRS as of that date. Do not look for a configuration view row using Effective Status. Old rows will continue to store an Effective Status value of "A", and the most recent row (the "current" row) may actually have a status of "I" for Inactive.



### Background

View UW\_HR\_ALLJOB\_VW (ALLJOB) contains all changes to Job records identified by Empl ID and Empl Record Number. To analyze jobs as of some past date, as of "Today" or as of some future date, the correct rows must be selected. The job rows that are in effect for a Job (Empl ID and Empl Record Number) on a specific date, are the rows with the highest effective date that is less than or equal to the specified date.

There may also be multiple rows on the ALLJOB table for one effective date, because multiple changes were effective on that date. The row with the highest Effective Sequence is the last change of the day.

The table below shows a sample of several rows for one Job (Empl ID and Empl Record Number) over time as changes are made. The changes can have dates in the future as well as the present or past. There were two changes effective on 2/10/2011, a change effective in April 2011, a change effective in June, and a change effective on August 2011.

Empl ID	Empl Record	Effective Date	Effective
	Number		Sequence
00000000	0	2/10/2011	0
00000000	0	2/10/2011	1
00000000	0	4/10/2011	0
00000000	0	6/19/2011	0
00000000	0	8/28/2011	0

If we want the job row that is in effect on September 1, 2011, we need to use the row for Emplid 00000000 and Empl Record Number 0 that became effective on August 28 2011, the date closest to September 1, 2011.

If we want the job row that is in effect on July 1, 2011, we need to use the row for Emplid 00000000 and Empl Record Number 0 that became effective on June 19 2011, the date closest to July 1, 2011.

The employee's jobs do not have any rows that are effective on September 1 2011 or July 1 2011.

### Finding the ALLJOB rows that are in effect on a Specific Date

How can we get the correct row(s) selected using Hyperion IR and the ALLJOB view to find how employee's job looked on a specific date? We want just one row for each Empl ID and Empl Record Number, and it should be the row that would have been in effect on the specified date.

This document provides four methods for getting the correct rows from the ALLJOB view that are in effect as of a certain date.

Method 1: Row End Date and Max Sequence Indicator	(Page 3)
Method 2: Subquery	(Page 5)
Method 3: ColMax Function	(Page 11)
Method 4: Next Function	(Page 17)

This document is written for someone who has training or experience using Hyperion to request data from a view and create Computed Items in the Results. It will explain some techniques that you might not have used or learned in (Hyperion) Interactive Reporting training classes.



### Method 1: Row End Date and Max Sequence Indicator

In October 2012, two new fields were added to the UW\_HR\_ALLJOB\_VW. The fields are UW\_DV\_ROW\_END\_DATE and UW\_DV\_MAX\_SEQ\_IND. These two fields make it easy to identify the rows that are in effect at a point in time. These fields are also found on the UW\_HR\_CURJOB\_VW, but aren't needed when using the CURJOB view. These fields may be added to other views with Effective Date and Effective Sequence. (If Row End Date is not found on a view, use Methods 2, 3 or 4.)

The job data below shows the values for Row End Date and Max Sequence Indicator for the original set of job rows.

Empl ID	Empl Record	Effective Date	Effective	Row End	Max
	Number		Sequence	Date	Sequence
					Indicator
0000000	0	2/10/2011	0	4/9/2011	N
0000000	0	2/10/2011	1	4/9/2011	Y
0000000	0	4/10/2011	0	6/18/2011	Y
0000000	0	6/19/2011	0	8/27/2011	Y
0000000	0	8/28/2011	0	12/31/9999	Y

The row with Effective Date 8/28/2011 has no end date, so the default value of "12/31/9999" is used. Otherwise the Row End Date is one day before the next Effective date. For example, the rows with effective date 2/10/11 are in effect until 4/9/2011, because the next higher effective date is 4/10/2011.

When there are multiple changes on the same day, the row with the highest Effective Sequence will have the value "Y" in the Max Sequence Indicator. Earlier changes effective on the same date will have a value of "N" in the Max Sequence Indicator.

You may also specify other filters to limit the number of rows selected. For example, you may choose to limit the records selected to just jobs in Dept A02, only classified jobs, jobs with jobcode xxxxx, etc.

Method 1 Step

A. Create the ALLJOB query to select jobs in effect on Sept 1, 2011

Create a new query document. In the query pane, drag in the UW\_HR\_ALLJOB\_VW. For the discussion below, the query has been renamed "ALLJOB Query". Put the following fields in the Request line: Emplid, Empl Rcd, Effdt, Effseq and Comp Effseq along with other job fields.

Add filters using EFFDT, UW\_DV\_ROW\_END\_DATE and UW\_DV\_MAX\_SEQ\_IND.

The filter for Effdt is Less than or Equal to 09/01/2011.

Filter: Effdt	
Name:	Effct
	Include Nulls
🗖 Not	<= Less or Equal
× 🗸	09/01/2011



The filter for UW\_DV\_ROW\_END\_DATE is: Greater than or equal to 09/01/2011.

Filter: Uw Dy Row End Date			
Name:	Uw Dv Row End Date		
	Include Nulls		
🗖 Not	>= Greater or Equal		
× ✓	09/01/2011		

The filter for UW\_DV\_MAX\_SEQ\_IND is "Equal to Y".

Filter: Uw Dv Max Seq Ind			
Name:	Uw Dv Max Seq Ind		
	Include Nulls		
🗖 Not	= Equal		
× ✓	М		

Process ALLJOB Query. The results should be the rows for the selected employees and job record numbers that were in effect as of September 1, 2011 that meet all of your selection criteria.



### Method 2: Subquery

We can use a subquery to get the correct row(s) from the UW\_HR\_ALLJOB\_VW. Setting up a subquery in Interactive Reporting can be considered more of an intermediate or advanced topic in IR training. But once the technique is learned, it can be used to pick the rows that are in effect as of a specified date from any type of historical data view. (PS Query automatically creates subqueries for the query developer using the ALLJOB view.)

This method also allows you to specify other filters to select a set of jobs. The filters may be something like "all jobs in Department A02" or "all classified jobs" or "all jobs with job code xxxxx". In one query, the desired population can be obtained. Whether this method performs as well as other methods has not been measured.

Method 2 Steps

### A. Create the ALLJOB query to select jobs in effect on Sept 1, 2011

Create a new query document. In the query pane, drag in UW\_HR\_ALLJOB\_VW from the list of Tables.

Add filters to select jobs using fields like Empl Status or HR Status, Empl Class, DeptID, Jobcode, etc. according to your analysis or reporting need. For the discussion below, the query has been renamed "ALLJOB Query".

We need to add three filters to help select the row that is in effect on a specified date, and to pick the "last" row of that day.

### Filter 1: Effective Date

1. Double click on the field in the View list, and open up the Filter window shown below.



Filter Box

Click on the Advanced button. This will expand the Filter window.



Click on Create Subquery.

Filter: Effdt			
Name:	Effett	ок	
	Include Nulls	Cancel	
🗆 Not	= Equal	Ignore	
× ✓		Help	
Show Values	<b>A</b>		
Custom Values			
Custom SQL			
Select All			
Remove	▼ 	Advanced	
-Loaded Values	Settings		
C Load From F	File	Change File	
C Load From I	- Database		
-Create SubQuer	y		
Create a subque	ery with the Creat	e SubQuery 🗋	
current query a:	s its parent.		
			Expanded Filter Box

This is the Subquery panel. Note that there is a new Section under your Query titled Subquery.

🔊 SubQuery 🗸				Prequest(0)	🍸 <u>Filters(0)</u>	📑 <u>Sort(0)</u>	- 4 H
Sections	×	Request D	rag Topic Items here to build a	a Query			
ALLJOB Query		Fitter 🔺 D	rag Topic or Computed Reque	st Items here to create Fil	ters		
Results		Sort D	rag Request Items here to sort	t them			
	_	🐙 Subquery					
				Ps Uw Hr Alljob V Emplid	w 🗖		
				Empl Rcd			
				Effseq Comp Effrog			
				Comp Enseq Comp Ratecd			
E Ps Uw Hr Alljob Vw				Acct Cd			
				Uw Acct Cd Desc Action	r		
				Uw Action Descr Action Dt			
				Action Reason Uw Actn Rsn Des	icr 🛛		
				Barg Unit			

The Elements pane shows two items: Topics and Queries.



2. Expand the Queries item in the Elements pane to show the query ALLJOB Query



3. Drag the ALLJOB Query item into the Subquery panel next to the view..



4. Move Effdt from the UW\_HR\_Alljob\_Vw list of fields to the Request line of the Subquery. Right click on the field in the Request line to open a menu showing Data Functions and expand that menu to see a list of functions. Select MAX from the list. The request line field then shows MAX(Effdt).

Request Effdt		
	Data Functions 🔸	None
Filter 🗕 Emplid /	) Hide	Sum
Sort Drag Red	) Demove	Average
		Minimum
Subquery	Properties	Maximum
	Font	Count Count Distinct
		Standard Deviation
		Variance
		Weight

- 5. The next steps correlate the subquery to the main query, by selecting fields that must have the same value in both the main query (ALLJOB query) and the subquery.
  - a. Drag Emplid from the list of fields in the Alljob view over to the Query box. This will open a new window called Select correlation column.





b. Click on the plus sign by UW HR Alljob Vw. This expands the list of fields on the view. Select Emplid from the list to "correlate" with Emplid from the subquery. Click OK.

Select correlation column					
🖃 Topics 📃	ок				
🖻 ALLJOB Query 📃					
🖻 Ps Uw Hr Alljob 🔪	Cancel				
- Emplid					
Empl Rcd					
Effat					
- Effseq					
- Comp Effseq					

c. Similar to step a, Drag Empl Rcd from the list of fields in the Alljob view over to the ALLJOB Query box. Expand the list of fields and select Empl Rcd. Click OK.

Select correlation column	
🖃 Topics	ок
🖻 ALLJOB Query 📃	
🖻 Ps Uw Hr Alljob 🗸	Cancel
Emplid	
Empl Rod	
Effdt	
Effseq	
- Comp Effseq	

This completes the subquery correlation



6. Add a filter in the subquery for Effdt that establishes the "as of" date for the selection of rows. For example, if you want to see how a job looked as of September 1, set the filter for Effdt to be "Less than or Equal to" 09/01/11.



Filter: Effdt		
Name:	Max Effdt	ок
	Include Nulls	Cancel
🗆 Not	<= Less or Equal	Ignore
× ✓	09/01/11	Help
Show Values	A	
Custom Values		

The name of the Filter in this example is changed to "Max Effdt".

The first Subquery for Effdt is now complete. The Subquery can be renamed to "Effdt Subquery".

Filter 2: Effective Sequence

- 1. Add Effseq to the Filter line double click on the field in the View list, and open up the Filter window shown below. Click on the Advanced button. This will expand the Filter window. Click on Create Subquery.
- 2. Expand the Queries item in the Elements pane to show the ALLJOB Query
- 3. Drag the ALLJOB Query item into the Subquery panel, along with a copy of the Topic.
- 4. Move Effseq from the UW\_HR\_Alljob\_Vw list of fields to the Request line of the Subquery. Right click on the field in the Request line to open a menu showing Data Functions and expand that menu to see a list of functions. Select MAX from the list. The request line field now shows MAX(Effseq).
- 5. The next steps correlate the subquery to the main query, by selecting fields that must have the same value in both the main query (ALLJOB query) and the subquery.
  - a. Drag Emplid from the list of fields in the Alljob view over to the Query box. This will open a new window called Select correlation column. Click on the plus sign by UW HR Alljob Vw. This expands the list of fields on the view. Select Emplid from the list to "correlate" with Emplid from the subquery. Click OK.
  - b. Similar to step a, drag Empl Rcd from the list of fields in the Alljob view over to the ALLJOB Query box. Expand the list of fields and select Empl Rcd. Click OK.
  - c. Similar to step a, drag Effdt from the list of fields in the Alljob view over to the ALLJOB Query box. Expand the list of fields and select Effdt Click OK.

### Filter 3: Comp Sequence

- 1. Add Comp Effseq to the Filter line double click on the field in the View list, and open up the Filter window shown below. Click on the Advanced button. This will expand the Filter window. Click on Create Subquery.
- 2. Expand the Queries item in the Elements pane to show the ALLJOB Query



- 3. Drag the ALLJOB Query item into the Subquery panel, along with a copy of the Topic.
- 4. Move Effseq from the UW\_HR\_Alljob\_Vw list of fields to the Request line of the Subquery. Right click on the field in the Request line to open a menu showing Data Functions and expand that menu to see a list of functions. Select MAX from the list. The request line field now shows MAX(Comp Effseq).
- 5. The next steps correlate the subquery to the main query, by selecting fields that must have the same value in both the main query (ALLJOB query) and the subquery.
  - a. Drag Emplid from the list of fields in the Alljob view over to the Query box. This will open a new window called Select correlation column.
     Click on the plus sign by UW HR Alljob Vw. This expands the list of fields on the view. Select Emplid from the list to "correlate" with Emplid from the subquery. Click OK.
  - b. Similar to step a, drag Empl Rcd from the list of fields in the Alljob view over to the ALLJOB Query box. Expand the list of fields and select Empl Rcd. Click OK.
  - c. Similar to step a, drag Effdt from the list of fields in the Alljob view over to the ALLJOB Query box. Expand the list of fields and select Effdt Click OK.
  - d. Similar to step a, drag Effseq from the list of fields in the Alljob view over to the ALLJOB Query box. Expand the list of fields and select Effseq Click OK.

When all three subqueries have been established, the main query (ALLJOB query) should include these Filters and subqueries, along with other filters that establish the criteria for selecting jobs.

Sections	×	Request Drag Topic Items here to build a Query	
ALLJOB Query		Fitter Fiftet AND Effseq AND Comp Effseq	
JEffseq SubQuery		Sort Drag Request Items here to sort them	
🖉 Comp Effseq SubQuery			
Ja Results			
	_	🛅 Ps Uw Hr Alljob Vw 📃	
		Emplid Strend Red	
		Sub Effdt	
		Sub Effseq	
		Sub Comp Effseq	
		Comp Ratecd	

Add all fields that you want in the Results in the Results line.

With the Main Query open, you can process the ALLJOB Query. The results should be the rows for the selected employees and job record numbers that were in effect as of September 1, 2011 that meet all of your selection criteria.



### Method 3: Using ColMax function

This method eliminates the need to set up subqueries. However, you must do two queries, one to select the rows that are in effect as of the specified date, and then a second to select jobs based on your criteria (such as department, empl class, etc.). If you add the criteria in the first query, you may not select the correct row out of job history that was in effect on the specified date. The row that matches your criteria may be an earlier row that actually wasn't in effect on the specified date.

Here is an example. You want to find all jobs that were effective as of September 1, 2011 that are in department A062040. Here is the job history for an Empl ID and Empl Record Number, showing different departments over time.

Empl ID	Empl Record Number	Effective Date	Effective Sequence	Department
0000000	0	2/10/2011	0	A062000
0000000	0	2/10/2011	1	A062000
0000000	0	4/10/2011	0	A062040
0000000	0	6/19/2011	0	A022000
0000000	0	8/28/2011	0	A022000

If your query selects jobs in Department A062040, then one row will be selected, the one that became effective on 4/10/2011. While this row is prior to September 1, it is not the row that was in effect on September 1. The row that is in effect on September 1 became effective on August 28, 2011, and the Department value is A022000.

- 1. Create a query to find only one row for each effective date that is less than or equal to your "as of" date for a job (Empl ID and Empl Record Number combinations) with the values from the last change of that day.
- 2. From all of these rows, select only the most recent row for each Empl ID and Empl Record Number using a function called ColMax. This will be a new Table in your Local Results section.
- 3. Create a second query joining the Table of rows in effect on the "as of" date, and join this with the ALLJOB view to select the fields and apply the selection criteria (e.g. a job in Department A062040).

The performance of this method will be based on the amount of time needed to select all rows from the Alljob view without any criteria other than the Effdt value. As time passes, more and more rows will be returned when using relatively recent "as of" dates.

### Method 3 Steps

### A. Create the ALLJOB query to select jobs in effect on Sept 1, 2011

Create a new query document. In the query pane, drag in the UW\_HR\_ALLJOB\_VW. For the discussion below, the query has been renamed "ALLJOB Query". Put only the following fields in the Request line: Emplid, Empl Rcd, Effdt, Effseq and Comp Effseq.

Request Emplid Empl Rcd Effdt Effseq Comp E	Effseq
---------------------------------------------	--------

Click on Effseq field in the Request line to highlight the field, and then right-click to bring up a menu





Expand the Data Functions options by moving the cursor to that option, and sliding it to the right to open the submenu under "Data Functions" and select "Maximum" from the list of functions.



Or highlight EffSeq in the Request line and open the Query menu and select Data Functions. Then expand the submenu under Data Functions and select "Maximum".

Query       DataModel       Tools       Window       Help         Process Result to Table       Process V       Image: Comparison of the second sec
Process Result to Table Estimate Query Size
Show Remarks Ctrl+I
Add Request Item(s) Add Filter(s) Ctrl+L Add Sort(s) Add Cortex and Them
Data Functions     None       Variable Filter     Sum
i Customize Filter Average Minimum
- Append Query Maximum Count
Query Options Count Distinct Standard Deviation
Results Weight
The Request line then looks like this:
Repeat this for the Comp Effseq field:



This will return the "last" row for each Emplid, Empl Rcd number and Effective Date (Effdt).

Add a Filter using Effdt to establish your "as of" date for retrieving job data. For example, if you want the job data as of September 1, 2011, add a Filter to select Effdt less than or equal to 09/01/11. Always use the "<= Less or Equal" operand; do not use "Equal" which is the default operand for a filter.

Filter: Effdt		
Name:	Effdt	ОК
	Include Nulls	Cancel
🗖 Not	<= Less or Equal	Ignore
XV	09/01/11	Help
Show Values	<b>A</b>	
Custom Values		
Custom SQL		

When the ALLJOB query is processed, then the results will contain all job rows that have an effective date less than or equal to September 1, and there will be only one row for each EmplID and Empl Rcd number and effective date.

- B. Manipulate the Results
  - a. Add a computed item to the Results. This field can be called "EmpIID and Rcd". The value in this computed item is the concatenation of the Emplid and the EmpI Record number. When building a computed item, click on the keys to get the "+" operand in the equation. This formula includes a space between the Emplid and the EmpI Rcd value.

modiry	
Name Emplid and Rcd	
Definition	
Emplid + " " + Empl_Rcd	Functions
	Reference
	Options
+ - * / ( )	
== != and or if else	
mod < <= > >= not	

b. Add a second computed item to the Results. This field can be called "Max Effdt per Empl Rcd". This computed item uses the ColMax function. You can find the ColMax function by clicking on the Functions button, and then looking under the Functional Category of "Numeric



Functions". The ColMax parameters are Column, Break Column, and Break Value. For the Column, use the Reference button to pick the "Effdt" field. For the Break Column, use the Reference button to select the "EmpIID and Rcd" field

Conditional Eurotiona	Ava
Date Functions	
Math Functions	Chr
Numeric Functions	ColMax
Picture Functions	ColMin
Statistical Functions String Eurotions	Count
Trend Functions	
Returns the largest Value	e in a column of numbers.
Column	e in a column of numbers.
Column Break Column (Optional)	e in a column of numbers.  Reference  Reference
Column Column Break Column (Optional) Break Value (Optional)	e in a column of numbers.          Reference         Reference

The resulting formula is: ColMax (Effdt, Emplid\_and\_Rcd)

Modify	
Name Max Effdt per Emplid Rcd	
ColMax ( Effdt, Emplid_and_Rcd )	Functions Reference Options

This computed item will hold the highest Effdt value for each combination of EmpIID and EmpI Rcd number.

c. Add a third computed item to the Results. This field can be called "Row In Effect". This field will identify the rows where the effective date is equal to the Max effective date, and indicate the row that was in effect on the "as of" date by putting the word "OK" on the row.



Modify	
Name Row In Effect	
Definition if(Max_Effdt_per_Emplid_Rcd == Effdt) if(Nvl(Max_Effdt_per_Emplid_Rcd," ") != " ") ('OK'}	Functions Reference Options
+ - * / ( ) == != and or if else mod < <= > >= not	

After creating these three computed items, the results should look similar to the following, with some rows showing "OK" and some rows that do not in the "Row In Effect" column. The rows that show "OK" are the rows where the Effdt equals the value in the "Max Effdt per Emplid Rcd" column.

	Emplid	Empl Rcd	Effdt	Effseq	Comp Effseq	Emplid and Rcd	Max Effdt per Emplid Rcd	Row In Effect
1	00000001	0	02/10/11	1	0	00000001 0	02/10/11	ок
2	00000005	0	02/10/11	0	0	00000005 0	02/10/11	ок
3	00000007	0	02/10/11	0	0	00000007 0	02/10/11	ок
4	00000009	0	02/10/11	0	0	00000009 0	08/01/11	
5	00000009	0	07/01/11	0	0	00000009 0	08/01/11	
6	00000009	0	08/01/11	0	0	00000009 0	08/01/11	ок
7	00000015	0	02/10/11	0	0	00000015 0	08/29/11	
8	00000015	0	05/23/11	0	0	00000015 0	08/29/11	
9	00000015	0	08/29/11	0	0	00000015 0	08/29/11	ок
10	00000015	1	05/23/11	1	0	000000151	07/23/11	
11	00000015	1	07/23/11	0	0	000000151	07/23/11	ок
12	00000018	0	02/10/11	0	0	00000018 0	06/19/11	
13	00000018	0	06/19/11	0	0	00000018 0	06/19/11	ок

### C. Create the "In Effect" Table

While in the Results section, click on the Insert menu and select "New Table".

Insert	Format	Results	To
n 🔊 Ne	w Query		
📃 Ne	w Table		
Ne Ne	w Pivot		
📜 🛄 Ne	w Chart		- b
" 🔡 Ne	w Report	:	
i 🔤 Ne	ew Dashbi	oard	



Put the EmpIID, EmpI Rcd, Effdt, Effseq, and Comp Effseq fields in the new table. Drag the "Row in Effect" field to the Filter line of the Table. Use the filter to select only the rows with the value of "OK". The table now holds all of the rows in effect on the "as of" date.

Filter Row In Effect					
Filter: Row In Eff	ect				
Name:	Row In Effect	ок			
	🔲 Include Nulls	Cancel			
🗖 Not	= Equal	Ignore			
× ✓		Help			
Show Values	ок 🔼				
Custom Values					
Select All					
Remove	<b>T</b>				
		Options			

The results will look something like the following example, with one row for each Empl ID and Empl Rcd number.

F	Filter Row In Effect						
	Emplid	Empl Rcd	Effdt	Effseq	Comp Effseq		
	00000001	0	02/10/11	1	0		
	0000005	0	02/10/11	0	0		
	0000007	0	02/10/11	0	0		
	0000009	0	08/01/11	0	0		
	00000015	0	08/29/11	0	0		
	00000015	1	07/23/11	0	0		
	00000018	0	06/19/11	0	0		



### Method 4: Using Next function

This method eliminates the need to set up subqueries. However, you must do two queries, one to select the rows that are in effect as of the specified date, and then a second to select jobs based on your criteria (such as department, classified, etc.). If you add the criteria in the first query, you may not select the right row out of job history that actually was in effect on the specified date. The row that matches your criteria may be an earlier row that actually wasn't in effect on the specified date.

Here is an example. You want to find all jobs that were effective as of September 1, 2011 that are in department A062040. Here is the job history for an Empl ID and Empl Record Number, showing different departments over time.

Empl ID	Empl Record Number	Effective Date	Effective Sequence	Department
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0000000	0	2/10/2011	1	A062000
0000000	0	4/10/2011	0	A062040
0000000	0	6/19/2011	0	A022000
0000000	0	8/28/2011	0	A022000

If your query selects jobs in Department A062040, then one row will be selected, the one that became effective on 4/10/2011. While this row is prior to September 1, it is not the row that was in effect on September 1. The row that is in effect on September 1 became effective on August 28, 2011, and the Department value is A022000.

- 1. Create a query to find only one row for each effective date that is less than or equal to your "as of" date for a job (Empl ID and Empl Record Number combinations) with the values from the last change of that day.
- 2. Sort the Results by Empl ID, Empl Record Number, Effective Date, Effective Sequence and Comp Effective Sequence.
- 3. From all of these rows, select only the most recent row for each Empl ID and Empl Record Number using a function called Next. This will be a new Table in your Local Results section.
- 4. Create a second query joining the Table of rows in effect on the "as of" date, and join this with the ALLJOB view to select the fields and apply the selection criteria (e.g. a job in Department A062040).

The performance of this method will be based on the amount of time needed to select all rows from the Alljob view without any criteria other than the Effdt value. As time passes, more and more rows will be returned when using relatively recent "as of" dates.

### Method 4 Steps

A. Create the ALLJOB query to select jobs in effect on Sept 1, 2011

Create a new query document. In the query pane, drag in the UW\_HR\_ALLJOB\_VW. For the discussion below, the query has been renamed "ALLJOB Query". Put only the following fields in the Request line: Emplid, Empl Rcd, Effdt, Effseq and Comp Effseq.

Request Emplid Empl Rcd Effdt Effseg Comp Effseg

Click on Effseq field in the Request line to highlight the field, and then right-click to bring up a menu





Expand the Data Functions options by moving the cursor to that option, and sliding it to the right to open the submenu under "Data Functions" and select "Maximum" from the list of functions.



Or highlight EffSeq in the Request line and open the Query menu and select Data Functions. Then expand the submenu under Data Functions and select "Maximum".

	Query DataModel Tools Win	dow Help	
	Process Result to Table Estimate Query Size	Process 👻 🎿	
	Show Remarks, Ctr	+I	
	Add Request Item(s) Add Filter(s) Ctr	H+L st Emplid Empl Red Ef	
	Add Sort(s) Add Computed Item	Drag Topic or Comput	
	Data Functions	None 😽	
	Variable Filter	Sum	
	Customize Filter	Average	
	hanned Orenne	Minimum	
	<ul> <li>Append Query</li> <li>Stored Bresedures</li> </ul>	Maximum	
	· scored Procedures	Count	
	Query Options	Count Distinct	
		Standard Deviation Variance	
	Results	Weight	
The Request line then	looks like this:	Emplid Empl Rcd Effdt MA	X(Effseq) Comp Effseq
·			
Repeat this for the Con	np Effseq field:		
	Request	Emplid Empl Rod Effdt MAX	(Effseq) MAX(Comp Effseq)



This query will return one row for each Emplid, Empl Rcd number and Effective Date (Effdt).

Add a Filter using Effdt to establish your "as of" date for retrieving job data. For example, if you want the job data as of September 1, 2011, add a Filter to select Effdt less than or equal to 09/01/11. Always use the "<= Less or Equal" operand; do not use "Equal" which is the default operand for a filter.

Filter: Effdt		
Name:	Effdt	ОК
	Include Nulls	Cancel
🗖 Not	<= Less or Equal	Ignore
×v	09/01/11	Help
Show Values	▲	
Custom Values		
Custom SQL		

When the ALLJOB query is processed, then the results will contain all job rows that have an effective date less than or equal to September 1, and there will be only one row for each EmplID and Empl Rcd number and effective date.

### B. Manipulate the Results

a. Sort the Results by all of the fields in the Results.

Sort	Emplid 🚈 Empl Red 🛆	Effdt 🛆 Effsea 🗛	Comp Effsea 🖄
Sort	Emplid 🗠 Empl Rod 🗠	Effdt 🗠 Effseg 🗠	Comp Effseq

b. Add a computed item to the Results. This field can be called "Find Duplicates". This computed item uses the Next function. You can find the Next function by clicking on the Functions button, and then looking under the Functional Category of "Numeric Functions". The parameter the Next function is a column in the Results.

Function Categories:	Functions:
Conditional Functions Date Functions Math Functions Numeric Functions Picture Functions Statistical Functions String Functions Trend Functions	Count CountDistinct CountNonNull CountNull Cume Next Prior Sum
Returns the next value Column	Reference



For this field, use the following formula to define the new computed item "Find Duplicates" 'Unique'

```
if (Emplid == Next(Emplid))
if (Empl_Rcd == Next(Empl_Rcd))
{'Duplicate'}
```

Modify	
Name Find Duplicates	
Definition	
'Unique'	Functions
if(Emplid == Next(Emplid)) if(Empl_Rcd==Next(Empl_Rcd)) {'Duplicate'}	Reference Options
+ - * / ( )	
== != and or if else	
mod < <= > >= not	

The Results will show the word "Duplicate" on each row with the same Emplid and Empl Rcd until the "last" effective date. This row will be marked "Unique".

			-			
	Emplid	Empl Rcd	Effdt	Effseq	Comp Effseq	Find Duplicates
1	00027025	0	02/10/2011	1	0	Duplicate
2	00027025	0	04/10/2011	1	0	Duplicate
3	00027025	0	06/19/2011	0	0	Unique
4	00027025	1	02/10/2011	0	0	Duplicate
5	00027025	1	04/10/2011	0	0	Unique
6	00043046	0	02/10/2011	0	0	Duplicate
7	00043046	0	06/19/2011	0	0	Unique

The results will look something like this.

C. Create the "In Effect" Table

While in the Results section, click on the Insert menu and select "New Table".





Put the EmpIID, EmpI Rcd, Effdt, Effseq, and Comp Effseq fields in the new table. Drag the "Find Duplicates" field to the Filter line of the Table. Use the filter to select only the rows with the value of "Unique". The table now holds all of the rows in effect on the "as of" date.

Filter Find Duplicates				
Filter: Find Dupli	ates			
Name:	Find Duplicates	ок		
	Include Nulls	Cancel		
🗆 Not	= Equal 💌	Ignore		
×v		Help		
Show Values	Unique 🗾			
Custom Values				
Select All				
Remove	<b>_</b>			
		Options		

The In Effect Table will look something like this, with one row for each Empl ID and Empl Rcd number.

Emplid	Empl Rcd	Effdt	Effseq	Comp Effseq
00027025	0	06/19/2011	0	0
00027025	1	04/10/2011	0	0
00043046	0	06/19/2011	0	0



## Getting the Job Data using Method 3 or 4:

Once the "In Effect" table is created, you can insert a New Query to use the table to select rows from the ALLJOB view.

The query page will include both the In Effect Table and the ALLJOB view. Join the Table and the Alljob view by highlighting one of the key fields in the In Effect Table and dragging across to the same field in the Alljob view. This join will ensure that you are using the rows from Alljob that are in effect on your "as of" date.



Complete the query by adding Filters on the job data, such as the Department, the HR status, the Empl Status, Empl Class, or other criteria.

Put the fields that you want to retrieve on the Results line of the query.

When you process the query, the results will be the data about the job that is in effect on your selected date that also meets your criteria.