SELECT ID,

DOC\_ID,

TEMPL\_ID,

WORK\_ORDER\_ID,

NOTIF\_ID,

TASK\_LIST\_ID,

TYPE\_ID,

MAJOR\_VERSION,

MINOR\_VERSION,

trc\_num,

chg\_set\_guid,

client\_rec\_id,

client\_devc,

client\_usr\_name,

deleted,

dat\_mod,

dat\_cre

FROM (SELECT vw.\*,

ROW\_NUMBER ()

OVER (PARTITION BY vw.ID ORDER BY vw.flt\_dat\_mod DESC)

AS row\_num

FROM (SELECT */\*+ NO\_MERGE(notifjaak) NO\_MERGE(wojaak) \*/* FORM.ID,

FORM.DOC\_ID,

FORM.TEMPL\_ID,

FORM.WORK\_ORDER\_ID,

FORM.NOTIF\_ID,

FORM.TASK\_LIST\_ID,

FORM.TYPE\_ID,

FORM.MAJOR\_VERSION,

FORM.MINOR\_VERSION,

FORM.TRC\_NUM,

CHL\_FORM.chg\_set\_guid,

CHL\_FORM.client\_rec\_id,

CHL\_FORM.client\_devc,

CHL\_FORM.client\_usr\_name,

FORM.deleted,

NVL (CHL\_FORM.dat\_mod, FORM.dat\_mod) AS dat\_mod,

NVL (CHL\_FORM.dat\_cre, FORM.dat\_cre) AS dat\_cre,

FORM.dat\_mod AS flt\_dat\_mod

FROM (

select */\*+ ORDERED \*/* WORK\_ORDER.id ident

from (TABLE(CAST (V\_ZONEID\_LST AS TBL\_ZONE))) z, MAMBOOLD.ZONE , MAMBOOLD.WORK\_ORDER\_ZONE, MAMBOOLD.WORK\_ORDER

WHERE WORK\_ORDER.ID = WORK\_ORDER\_ZONE.WORK\_ORDER\_ID AND WORK\_ORDER\_ZONE.ZONE\_ID = ZONE.ID AND ZONE.ZONE\_NUM = z.ID

) wojaak,

(

select */\*+ ORDERED \*/* NOTIF.id ident

from (TABLE(CAST (V\_ZONEID\_LST AS TBL\_ZONE))) z, MAMBOOLD.ZONE , MAMBOOLD.NOTIF

WHERE NOTIF.ZONE\_ID = ZONE.ID AND ZONE.ZONE\_NUM = z.ID

) notifjaak,

MAMBOOLD.FORM, MAMBOOLD.CHL\_FORM

where FORM.dat\_mod > P\_PREV\_SYNC\_DATE

AND FORM.ID = CHL\_FORM.ID(+)

and ( FORM.WORK\_ORDER\_ID = wojaak.ident or FORM.NOTIF\_ID = notifjaak.ident)

UNION ALL

SELECT CHL\_FORM.ID,

CHL\_FORM.DOC\_ID,

CHL\_FORM.TEMPL\_ID,

CHL\_FORM.WORK\_ORDER\_ID,

CHL\_FORM.NOTIF\_ID,

CHL\_FORM.TASK\_LIST\_ID,

CHL\_FORM.TYPE\_ID,

CHL\_FORM.MAJOR\_VERSION,

CHL\_FORM.MINOR\_VERSION,

CHL\_FORM.trc\_num,

CHL\_FORM.chg\_set\_guid,

CHL\_FORM.client\_rec\_id,

CHL\_FORM.client\_devc,

CHL\_FORM.client\_usr\_name,

decode(CHL\_FORM.CHG\_OPER\_TYPE\_ID, 'D', 1, 0),

CHL\_FORM.dat\_mod AS dat\_mod,

CHL\_FORM.dat\_cre,

CHL\_FORM.dat\_mod AS flt\_dat\_mod

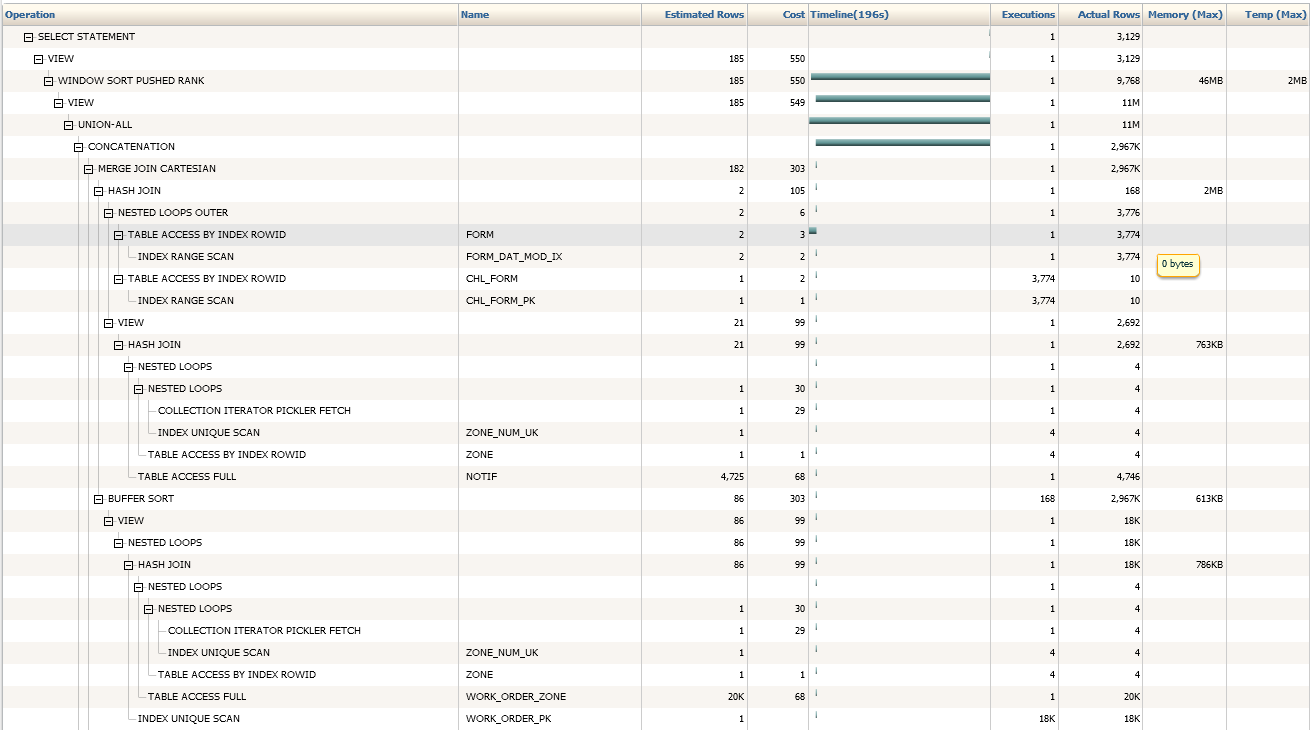
FROM MAMBOOLD.CHL\_FORM

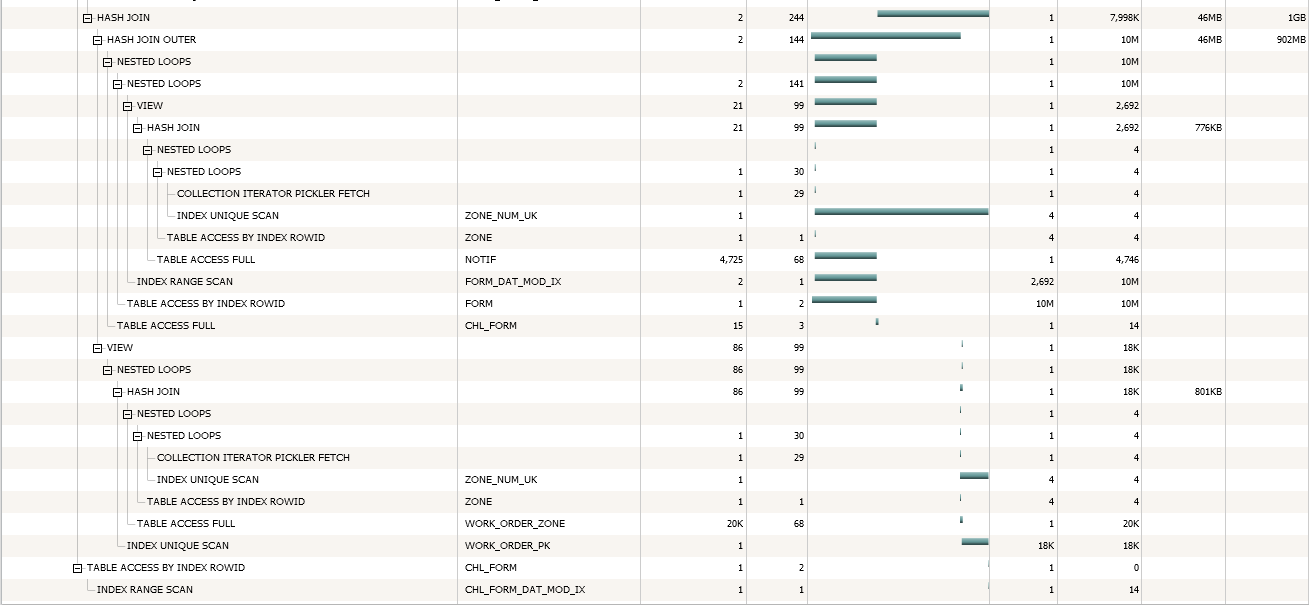
WHERE CHL\_FORM.dat\_mod > P\_PREV\_SYNC\_DATE

AND CHL\_FORM.CLIENT\_DEVC = P\_DEVC) vw

)

WHERE row\_num = 1;





There are 2 things to look at in this execution plan

* We need to try to remove the MERGE JOIN CARTESIAN
* Although the total table size of all tables is only 10 MB, we are using nearly 2 GB of TEMP space. This is probably caused by the MERGE JOIN CARTESIAN.

The total execution time of this query is between 2 and 3 minutes, which is quite high seen the volume of data that has to be processed.

The MERGE JOIN CARTESIAN is caused by the 2 subqueries NOTIFJAAK and WOJAAK which are joined with the FORM table, but there is not actually a join possible between the 2 subqueries.

As the 2 subqueries are joined with the FORM table with an OR condition, the MERGE JOIN CARTESIAN can be avoided by splitting up the query in 2 queries and joining them with a UNION ALL

SELECT ID,

DOC\_ID,

TEMPL\_ID,

WORK\_ORDER\_ID,

NOTIF\_ID,

TASK\_LIST\_ID,

TYPE\_ID,

MAJOR\_VERSION,

MINOR\_VERSION,

trc\_num,

chg\_set\_guid,

client\_rec\_id,

client\_devc,

client\_usr\_name,

deleted,

dat\_mod,

dat\_cre

FROM (SELECT vw.\*,

ROW\_NUMBER ()

OVER (PARTITION BY vw.ID ORDER BY vw.flt\_dat\_mod DESC)

AS row\_num

FROM (SELECT */\*+ NO\_MERGE(wojaak) \*/* FORM.ID,

FORM.DOC\_ID,

FORM.TEMPL\_ID,

FORM.WORK\_ORDER\_ID,

FORM.NOTIF\_ID,

FORM.TASK\_LIST\_ID,

FORM.TYPE\_ID,

FORM.MAJOR\_VERSION,

FORM.MINOR\_VERSION,

FORM.TRC\_NUM,

CHL\_FORM.chg\_set\_guid,

CHL\_FORM.client\_rec\_id,

CHL\_FORM.client\_devc,

CHL\_FORM.client\_usr\_name,

FORM.deleted,

NVL (CHL\_FORM.dat\_mod, FORM.dat\_mod) AS dat\_mod,

NVL (CHL\_FORM.dat\_cre, FORM.dat\_cre) AS dat\_cre,

FORM.dat\_mod AS flt\_dat\_mod

FROM (

select */\*+ ORDERED \*/* WORK\_ORDER.id ident

from (TABLE(CAST (V\_ZONEID\_LST AS TBL\_ZONE))) z, MAMBOOLD.ZONE , MAMBOOLD.WORK\_ORDER\_ZONE, MAMBOOLD.WORK\_ORDER

WHERE WORK\_ORDER.ID = WORK\_ORDER\_ZONE.WORK\_ORDER\_ID AND WORK\_ORDER\_ZONE.ZONE\_ID = ZONE.ID AND ZONE.ZONE\_NUM = z.ID

) wojaak,

MAMBOOLD.FORM, MAMBOOLD.CHL\_FORM

where FORM.dat\_mod > P\_PREV\_SYNC\_DATE

AND FORM.ID = CHL\_FORM.ID(+)

and ( FORM.WORK\_ORDER\_ID = wojaak.ident)

UNION ALL

SELECT */\*+ NO\_MERGE(notifjaak) \*/* FORM.ID,

FORM.DOC\_ID,

FORM.TEMPL\_ID,

FORM.WORK\_ORDER\_ID,

FORM.NOTIF\_ID,

FORM.TASK\_LIST\_ID,

FORM.TYPE\_ID,

FORM.MAJOR\_VERSION,

FORM.MINOR\_VERSION,

FORM.TRC\_NUM,

CHL\_FORM.chg\_set\_guid,

CHL\_FORM.client\_rec\_id,

CHL\_FORM.client\_devc,

CHL\_FORM.client\_usr\_name,

FORM.deleted,

NVL (CHL\_FORM.dat\_mod, FORM.dat\_mod) AS dat\_mod,

NVL (CHL\_FORM.dat\_cre, FORM.dat\_cre) AS dat\_cre,

FORM.dat\_mod AS flt\_dat\_mod

FROM (

select */\*+ ORDERED \*/* NOTIF.id ident

from (TABLE(CAST (V\_ZONEID\_LST AS TBL\_ZONE))) z, MAMBOOLD.ZONE , MAMBOOLD.NOTIF

WHERE NOTIF.ZONE\_ID = ZONE.ID AND ZONE.ZONE\_NUM = z.ID

) notifjaak,

MAMBOOLD.FORM, MAMBOOLD.CHL\_FORM

where FORM.dat\_mod > P\_PREV\_SYNC\_DATE

AND FORM.ID = CHL\_FORM.ID(+)

and ( FORM.NOTIF\_ID = notifjaak.ident)

UNION ALL

SELECT CHL\_FORM.ID,

CHL\_FORM.DOC\_ID,

CHL\_FORM.TEMPL\_ID,

CHL\_FORM.WORK\_ORDER\_ID,

CHL\_FORM.NOTIF\_ID,

CHL\_FORM.TASK\_LIST\_ID,

CHL\_FORM.TYPE\_ID,

CHL\_FORM.MAJOR\_VERSION,

CHL\_FORM.MINOR\_VERSION,

CHL\_FORM.trc\_num,

CHL\_FORM.chg\_set\_guid,

CHL\_FORM.client\_rec\_id,

CHL\_FORM.client\_devc,

CHL\_FORM.client\_usr\_name,

decode(CHL\_FORM.CHG\_OPER\_TYPE\_ID, 'D', 1, 0),

CHL\_FORM.dat\_mod AS dat\_mod,

CHL\_FORM.dat\_cre,

CHL\_FORM.dat\_mod AS flt\_dat\_mod

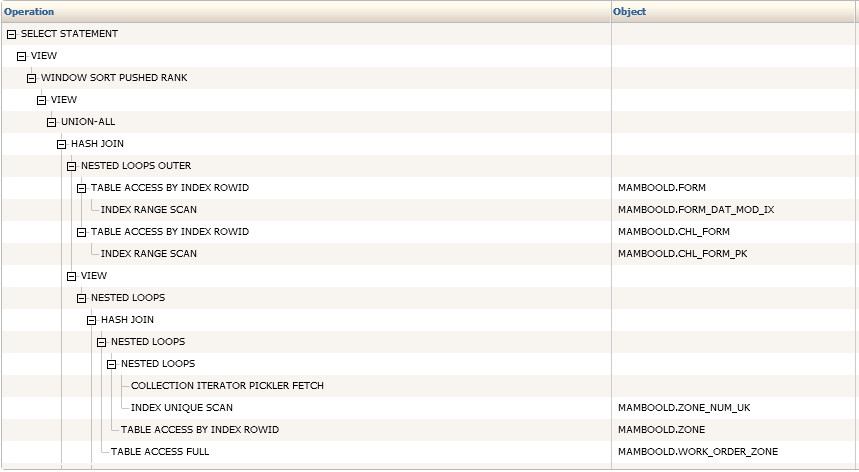
FROM MAMBOOLD.CHL\_FORM

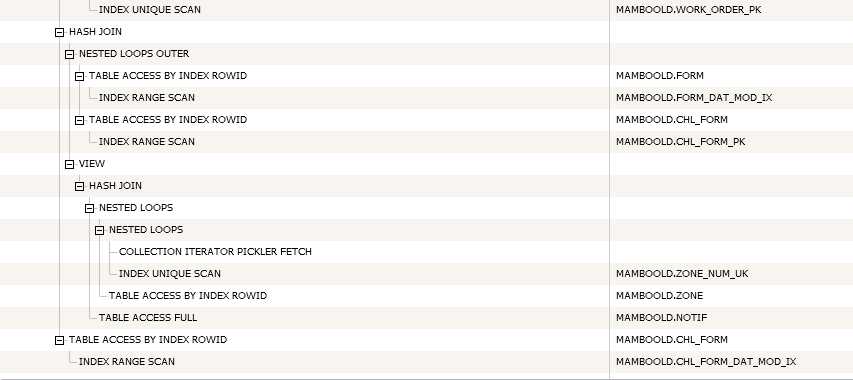
WHERE CHL\_FORM.dat\_mod > P\_PREV\_SYNC\_DATE

AND CHL\_FORM.CLIENT\_DEVC = P\_DEVC) vw

)

WHERE row\_num = 1;





Execution time of the new query is about 1 second.