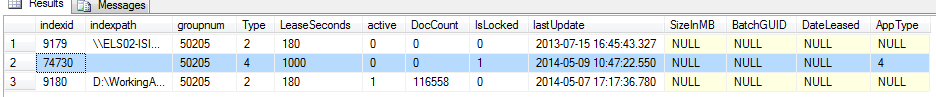
**Snapshot concept for any application:**

1. Use the SearchIndx SQL App Lock + Group Id to create a dummy index record for the specific group



1. Before any other application try to insert a record or use existing slot for this group , if there is already a record with type 4 , the application should wait , this is indicator there is another app working on this group right now and didn’t finish .

Create PROCEDURE [dbo].[stp\_AcquireL3IndexSnapShot]

@GroupId INT,

@Type TINYINT=4,

@AppType TINYINT

AS

BEGIN

DECLARE @LockResult int

DECLARE @lockname varchar(50)

SELECT @lockname = 'GetLevel3IndexBestCandidateAndLock' + CONVERT(VarChar, @GroupId) + 'AppLock'

EXEC @LockResult = sp\_getapplock @lockname, 'Exclusive', 'session', 500

Declare @IsAppRunning int;

IF @LockResult >= 0

BEGIN

select @IsAppRunning= count(\*) from searchindex where groupnum= @GroupId AND Type=4

IF @IsAppRunning =0

BEGIN

insert into searchindex values ('',@GroupId,@Type,1000,0,0,1,GetDate(),null,null,null,@AppType)

select SCOPE\_IDENTITY()

END

EXEC sp\_releaseapplock @lockname, 'session'

end

END

If the application had the searchindex Id then it succeed to acquire the lock other wise

It will sleep and try later

1. Once merge see this record or the indicator that an Application want to work on this group , merge should start working in no optimize L3 mode for the L3 indexes created before the App request (IV,RT) or the record of type 4 , meaning any future indexes/L1 batches will be created will only use L3 indexes created after the lastupdate date of the record of type 4 . in step 4 things will become clear.
2. When merge Activate/deactivate the new index /old indexes that they were in progress before creating the App record type 4 , if there is a record of type 4 ,

We will move the last update of the new index to match he lastupdate date of the record of type 4.

ALTER PROC [dbo].[stp\_TurnonSearchIndexes]

@NewIndexId INT,

@NewDocCount INT,

@NewDocSize DECIMAL(10,4),

@Indexes\_Deactivate Tp\_SearchIndexEntityType READONLY,

@Indexes\_Unlock Tp\_SearchIndexEntityType READONLY,

@GroupID INT,

@BatchGuid UNIQUEIDENTIFIER,

@AppType INT

AS

BEGIN

BEGIN TRANSACTION

DECLARE @MAXOldDate datetime

DECLARE @TransactionDate datetime

DECLARE @CurrentType4Date datetime

select @MAXOldDate=MAX(lastupdate) from searchindex where groupnum=@GroupID AND indexid IN (SELECT IndexId FROM @Indexes\_Deactivate)

select @CurrentType4Date=lastupdate from searchindex where groupnum=@GroupID AND Type=4

set @TransactionDate=GetDate()

DECLARE @IsAppRunning int

select @IsAppRunning= count(\*) from searchindex where groupnum= @GroupId AND Type=4

IF (@MAXOldDate <= @CurrentType4Date) AND @IsAppRunning > 0

BEGIN

-- that mean there is an app need snapshot concept and old indexes were in progress and we creating a new index related to them

-- move the last update date of the new index to match the currenttype4date

Set @TransactionDate= @CurrentType4Date

END

--activate index

UPDATE SearchIndex SET active=1,islocked=0,DocCount=@NewDocCount,SizeInMb=@NewDocSize , lastUpdate=@TransactionDate

WHERE indexid=@NewIndexId AND BatchGUID=@BatchGuid AND AppType=@AppType AND groupnum=@GroupID

--deactivate indexes

UPDATE SearchIndex SET active=0,islocked=1,DocCount=0,SizeInMB=0

WHERE indexid IN (SELECT IndexId FROM @Indexes\_Deactivate)

AND BatchGUID=@BatchGuid AND AppType=@AppType AND groupnum=@GroupID

--unlock indexes

EXEC stp\_UnlockSearchIndexes @Indexes\_Unlock,@GroupID,@AppType,@BatchGuid

COMMIT TRANSACTION

END

1. If the application (Index verification / Retention / Other ) see that all the active indexes before the last update date of the app record of type 4 , is unlocked and active. This is indicator that the Application can start work on any search index before Lastupdate of the record of type 4

Also the Application should work on the UIDs (MailsToIndex) DateFinished before or equal to the lastupdate date of the record of type 4 in searchindex table

Select count(\*) from searchindex where groupnum=@Groupid and Active=1 and islocked=1 and

lastupdate <= (select lastupdate from searchindex where groupnum=@Groupid and type=4)

if this script return 0 that mean the application is ready to start working.

1. Once app finish acquire these indexes , it should lock these indexes with the correct app type
2. For index verification there is no need to lock , the index reader can be used without conflict with search manager/ search agent.
3. For Retention, the same it will lock ,then retention should send unload index request , for search manager , once they are unloaded , it can proceed processing and deleting from these indexes , once finished , unlock the indexes , and release the search index record of type 4.