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About our presenter...

- Vincent Frimpong
 - Senior Support Engineer located in Ditton Park, UK
 - University of Greenwich
Postgraduate Degree in Distributed Computing Systems
 - Joined CA Technologies™ in 2000
 - Cleverpath Forest and Trees
 - CA Repository for Distributed Systems
 - Began supporting Clarity in 2007

CA Clarity PPM Timeslicing

Course Agenda

1 Overview of Timeslices / Fundamentals

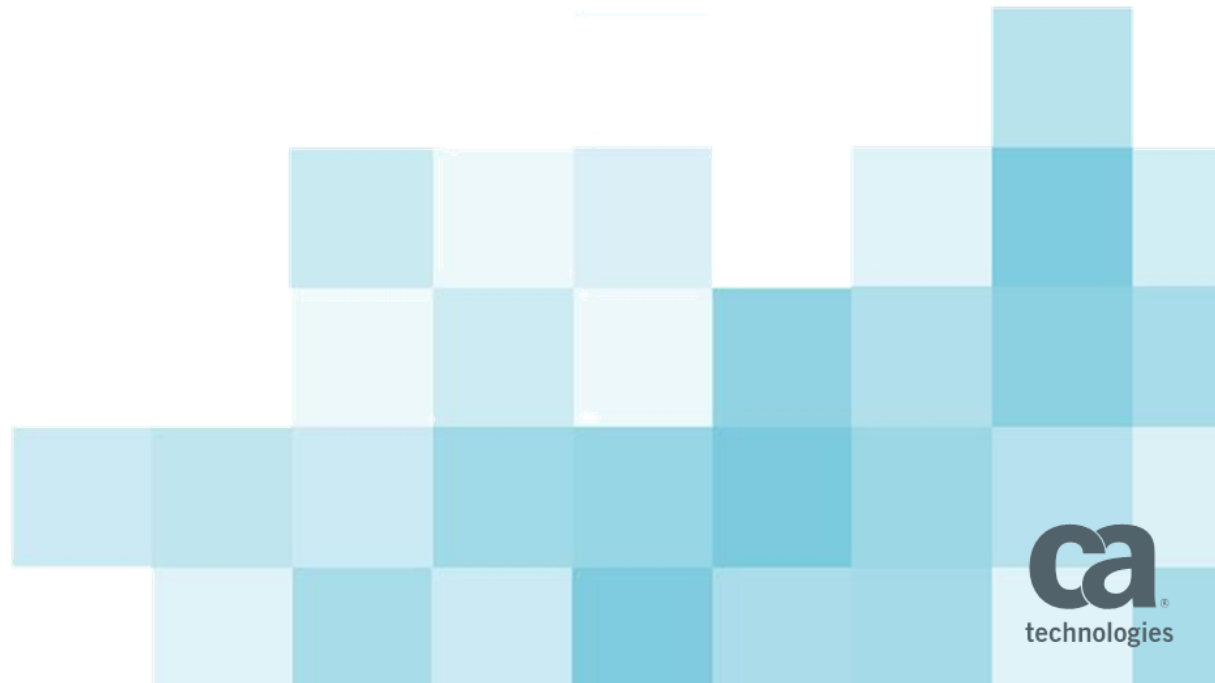
2 Timeslice Terminology

3 Types of Timeslices

4 Best Practices

5 Diagnostics / Debugging

Timeslice Fundamentals



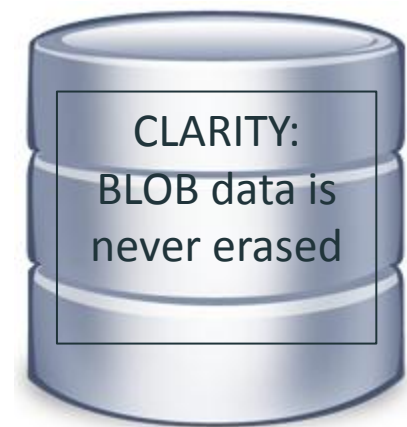
Example: Follow the Data

Timesheet – actual hours by person by task

Timesheet												
Time Period: 2/27/12 - 3/4/12												
Resource Name Paul Martin				Modified by Paul Martin								
Timesheet Status Open				Last Modified 1/23/13 4:09 PM								
	Investment	Description	Input Type Code	Mon 2/27	Tue 2/28	Wed 2/29	Thu 3/1	Fri 3/2	Sat 3/3	Sun 3/4	Total	ETC
Tasks												
<input type="checkbox"/>	eCommerce Portal	Complete Project Plan	Regular								0.00	12.00
<input type="checkbox"/>	Online Order Performance Improvements	Define Scope Change and Control Process	Regular								0.00	40.00
<input type="checkbox"/>	Online Order Performance Improvements	Define Resource Plan	Regular								0.00	80.00

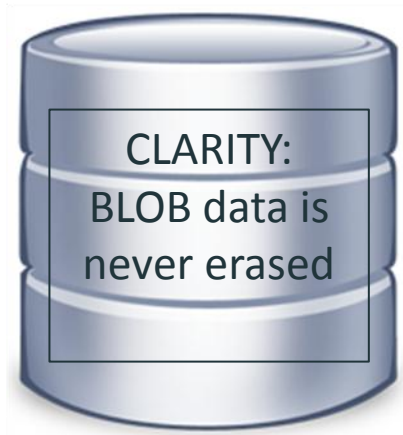
- PRO
 - Holds HUGE amounts of data
 - Compressed to save space
 - Increased performance when using MS Project, Clarity, Open Workbench
- CON
 - Can't be read by reporting tools

BLOB: binary large object

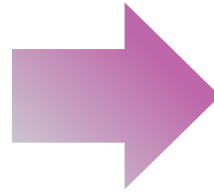


Getting Data for Reports, Dashboards...

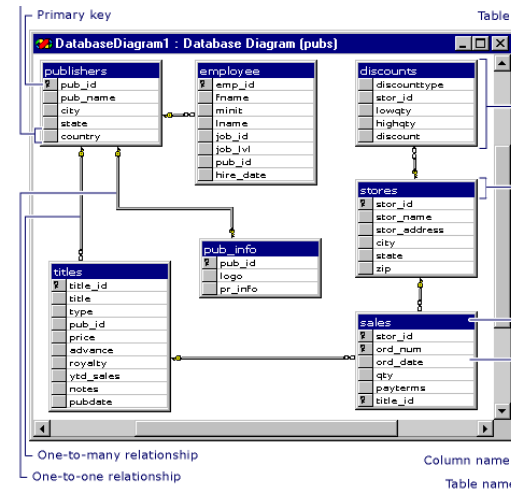
BLOB: binary large object



Timeslice Job

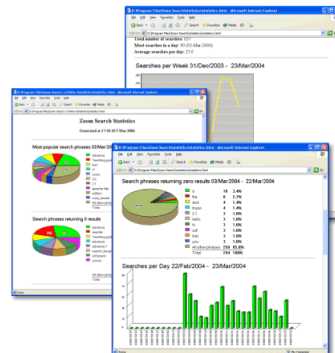


Timeslice Tables



Daily,
Weekly,
Bi-Weekly,
Monthly,
Quarterly,
Yearly
... and
more

Reports, Dashboards...



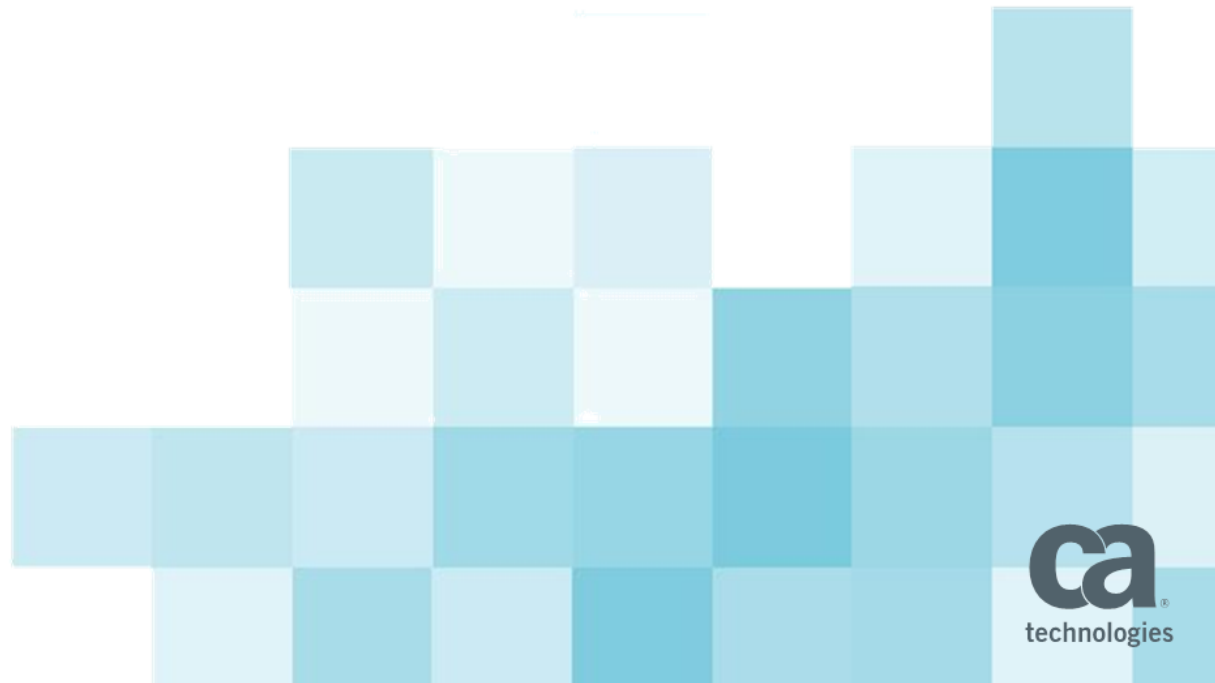
Timeslice Fundamentals

- What is a BLOB?
 - A BLOB is database data type and is an acronym for Binary Large Object. In Clarity BLOBs are used to store time-scaled data in a single data entity in the database. In some cases more than one type of data is stored in a BLOB. BLOBs cannot be read by reporting tools, therefore it's necessary to flatten out this data into a readable format. A timeslice is a flat table that contains data that is derived from a sliced binary large object (BLOB).
- What is a Timeslice?
 - Timeslicing is performed by the **Timeslice background job**. The Timeslicing Job extracts the BLOB data into a readable flat table based upon the criteria you set in the Timeslice request. The flatten Time-sliced data can be queried for reports and portlets or used in data extracts.
 - In the **slice requests** you determine which objects are time-sliced, the size of the slice, and interval when the slice request rolls-over. Each record in the timeslice table contains an object ID that corresponds to a data element.

Timeslice Fundamentals continued

- Why do we use BLOBs?
 - Clarity uses BLOB for its core data rather than flatten fact tables to **decrease database size** and **help speed the import export** performance for Client applications that read the BLOB data such as Open Workbench and Microsoft Project.
 - BLOBs have been in use with the Clarity project line since its inception and go back to Clarity forefathers from ABT and Niku.
- Where are BLOBS used in Clarity?
 - BLOBs are used in a number of places with in Clarity. Essentially anywhere in Clarity you can enter **values over time** the underlying data is stored in a BLOB. For example Actuals ETC and Baselines are common types of data that is stored in BLOBs. Exceptions that do not use BLOBs are Financial Transaction data that is stored in the PPA_WIP and PPA_WIP_Values tables.

Timeslice Terminology



Timeslice Terminology

■ Slice Request

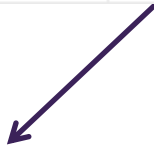
- The collection of parameters for a particular item to be sliced. Slice Request's are stored as a Row in the PRJ_BLB_SLICEREQUESTS table.
- User Defined and System defined Slice Requests that are configurable will show as a line item on the Timeslice Management Page in Clarity.
- Some Slice Requests are not configurable via the Clarity UI and do not show on the Timeslice Management Page.

■ Timeslice Range

- The moving window of time that a particular timeslice request covers. For example a 12 month could be configured with 6 months in the past and 6 months in the future.
- If the rollover is monthly, this range shifts forward one month each month.

Timeslice Tables Administration

Time Slice▲	Rollover Interval	From	Slice Period	Number of Periods	Item	Expiration	Last Run
DAILYBASEASSIGNCOSTS	Monthly	6/1/11	Daily	975	Current Baseline Assignment Cost	2/1/13	1/23/13 4:55 PM



ROLLOVER INTERVAL:

Frequency with which Clarity updates the From Date and shifts the timeslice range.

Rollover

A Timeslice job action of shifting or moving the timeslice range based on the slice request settings.

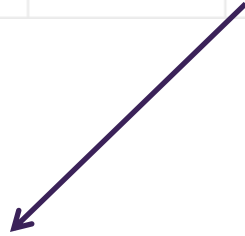
Rollover Interval

Specifies the frequency with which Clarity should update the From Date and shift the timeslice range. Monthly or Weekly Rollover intervals are recommended.

A rollover can be considered an expensive operation therefore Daily rollovers are not recommended and should be avoided. Many of the seeded system timeslices rollover Monthly or Weekly It is recommended that you configure any custom timeslice to rollover at the same time as the system timeslices. The Timeslice job will process the rollover of all items of a particular type at the same time.

Timeslice Tables Administration

Time Slice▲	Rollover Interval	From	Slice Period	Number of Periods	Item	Expiration	Last Run
DAILYBASEASSIGNCOSTS	Monthly	6/1/11	Daily	975	Current Baseline Assignment Cost	2/1/13	1/23/13 4:55 PM



FROM DATE:


This is beginning date in your Slice Request's range.

From Date

This is beginning date in your Slice Request's range. For example, if your business requirement is to have data beginning in June 2009 you would set your From Date as 06/01/2009. It is recommend for Monthly slice requests or Slice requests that rollover Month to have your From Date start on the first of a month. It is also recommend that all weekly slice requests start on the same day of the week.

Timeslice Tables Administration

Time Slice▲	Rollover Interval	From	Slice Period	Number of Periods	Item	Expiration	Last Run
DAILYBASEASSIGNCOSTS	Monthly	6/1/11	Daily	975	Current Baseline Assignment Cost	2/1/13	1/23/13 4:55 PM



SLICE PERIOD: Specifies the period to use for each timeslice request.

Slice Period

Specifies the period to use for each timeslice request.

- Daily
- Weekly. Seven calendar days.
- Bi-Weekly. 14 calendar days.
- Monthly. One calendar month.
- Bi-Monthly. Two calendar months.
- Quarterly. Three calendar months.
- Semi-Annually. Six calendar months.
- Yearly. 12 calendar months

Timeslice Tables Administration

Time Slice▲	Rollover Interval	From	Slice Period	Number of Periods	Item	Expiration	Last Run
DAILYBASEASSIGNCOSTS	Monthly	6/1/11	Daily	975	Current Baseline Assignment Cost	2/1/13	1/23/13 4:55 PM

NUMBER OF PERIODS: Specify the number of periods you would like reported.

Number of Periods

Specify the number of periods you would like reported. For example, if the specified period is weekly and you want it to run for two years you would set the number of periods to 104. *Note: Care must be taken when setting up timeslices to avoid database and performance issues. A great amount of data (especially for the daily slices) can be generated.*

Timeslice Tables Administration

Time Slice▲	Rollover Interval	From	Slice Period	Number of Periods	Item	Expiration	Last Run
DAILYBASEASSIGNCOSTS	Monthly	6/1/11	Daily	975	Current Baseline Assignment Cost	2/1/13	1/23/13 4:55 PM



EXPIRATION:
This is the next rollover date.

Expiration Date

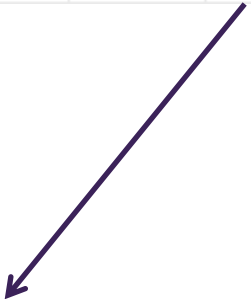
This is the next rollover date. For default timeslices, the interval is set by the system. For custom timeslices you can select the rollover interval. If your rollover interval is monthly and your From Date is on the first of the month (as recommended), the Expiration date will change on the first of each month. When the expiration date changes, the From Date will rollover for the same interval as will the expiration date. For example, if your expiration date is 1-Dec-2008 and your From Date is 1-Jun-2008 with the Rollover Interval set to monthly, 1-Dec-2008, your expiration date will rollover to 1-Jan-2009 and your From Date will rollover to 1-Jul-2008.

Timeslice Tables Administration

Time Slice▲	Rollover Interval	From	Slice Period	Number of Periods	Item	Expiration	Last Run
DAILYBASEASSIGNCOSTS	Monthly	6/1/11	Daily	975	Current Baseline Assignment Cost	2/1/13	1/23/13 4:55 PM

Last Run Date

Seen on the timeslice management page is the last time the timeslice job processed a particular slice request. It may be different for each slice request as the Timeslice job processes them one type at a time. For example all availability slice requests will be processed at the same time.



LAST RUN DATE: Last time the timeslice job processed a particular slice request.

Simple Example

FROM DATE



NUMBER OF PERIODS: number of buckets (12)

SLICE PERIOD: Monthly

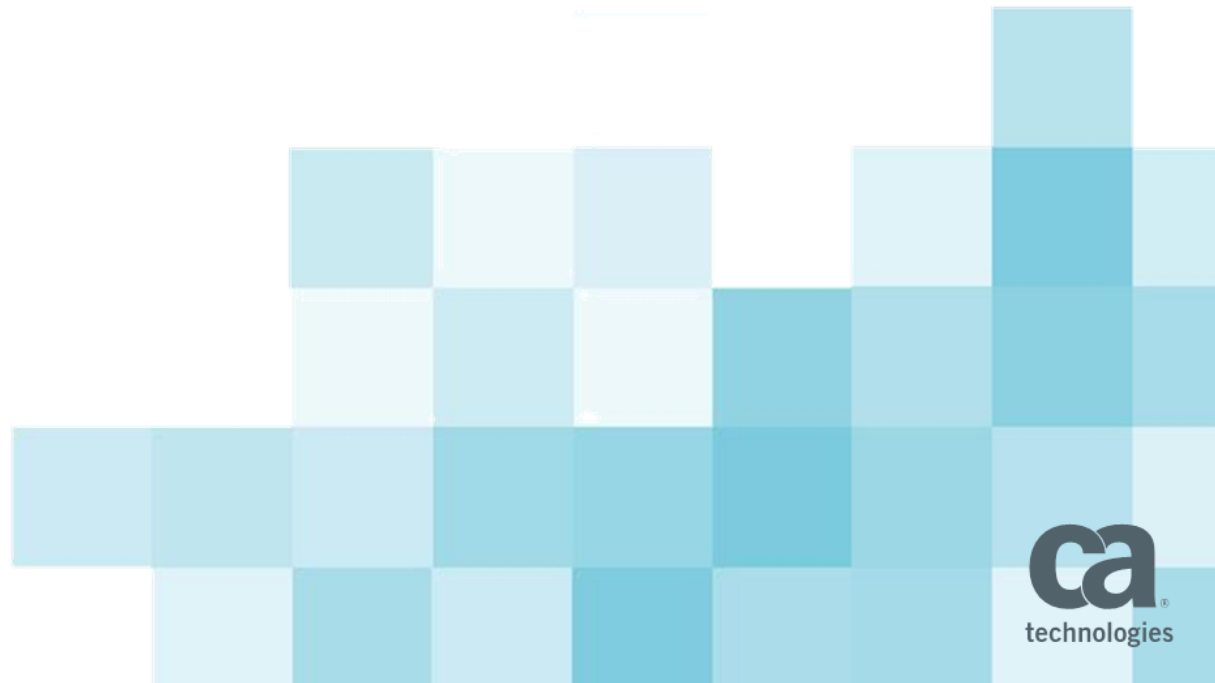
Simple Example



NUMBER OF PERIODS: number of buckets (12)

SLICE PERIOD: Monthly

Types of Timeslices



Types of Timeslices

- Standard Out-Of-The-Box Slices

- Basic Daily Timeslices:

- ID Request Name
 - 1 DAILYRESOURCEAVAILCURVE
 - 2 DAILYRESOURCEACTCURVE
 - 3 DAILYRESOURCEESTCURVE
 - 10 DAILYRESOURCEALLOCCURVE
 - 11 DAILYRESOURCEBASECURVE

- Daily timeslices are used to populate the Datamart as well as some out of the box reports.

- DAILYRESOURCEAVAILCURVE is used to compare a resource's availability to the amount of hours they tracked on their timesheet in the Missing Time Report.
 - DAILYRESOURCEACTCURVE is used for posted actuals in the Timesheet detail report (drilldown).

Types of Timeslices continued

- Standard Out-Of-The-Box Slices

- Basic Monthly Timeslices:

- ID Request Name
 - 4 MONTHLYRESOURCEACTCURVE
 - 5 MONTHLYRESOURCEESTCURVE
 - 6 MONTHLYRESOURCEALLOCCURVE
 - 7 MONTHLYRESOURCEAVAILCURVE

- Monthly Timeslices are not used in the Datamart. They are primarily used in Reports that give the option to select a Time period of Monthly or Weekly, such as the Capacity vs. Demand reports.

Types of Timeslices continued

- Investment (project) Timeslices
 - Daily, Weekly and Monthly slices at the Investment level for Actuals, Estimates, EAC, Baseline, Baseline Variance, Cost Plans, Benefit Plans. An example request name will be WEEKLY_INVESTMENT_ACTUALS
 - In Clarity these are used in the Time scaled views on the Hierarchy tab for both a Services and Investments. For example for any Investment navigate to the Hierarchy tab. Here you can go to the “Financial Rollup (Detailed)” sub link or the “Effort Rollup (Detailed)” sub link. You need to select Detail from “Select View” dropdown box navigate directly to the page that is preconfigured to use these timeslices.
 - These are not used in Investment Level Time Scaled Value Columns, such as can be configured to be on the project list page or a Portlet built off the Project Objects Data Provider. This can be confirmed by a SQLtrace, where you’ll see that it pulls the data directly from a special investment level blob field.

Types of Timeslices continued

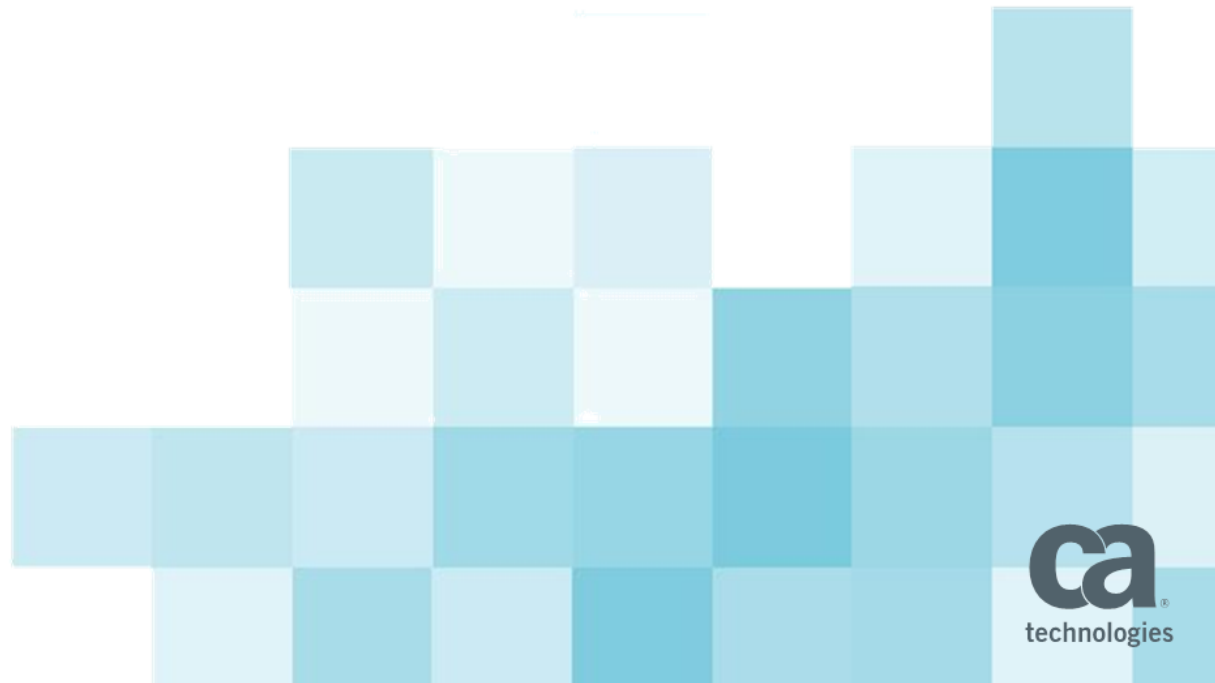
- Internal Timeslices

- In Clarity these are used in the Time scaled views such as the Team Detail page or Resource Planning portlets. They can not be seen on the Timeslice management page in Clarity and are often referred to Hidden slices.
- Three intervals, Daily, Weekly and Monthly slices at the object/row level.
- Items slices are Actuals, Estimates, Baseline, Allocations, Availability. An example request name will be W_ACT for weekly Actuals
- Internal Timeslices are sliced instantly when the appropriate BLOB is modified in the Clarity UI.
- Their data is stored in separate tables per slice request.

Types of Timeslices continued

- Out-of-The-Box for 12.1 and above.
 - Additional slice requests at the Weekly and Quarterly level are seeded Out-of-The-Box with 12.1.
 - These slices are used in the BusinessObjects universes for 12.1
 - Weekly slices are the same as the slice requests that can be optionally installed with the PMO Accelerator add on.
 - 55555 DAILYRESOURCETIMECURVE
 - 55556 WEEKLYRESOURCEACTCURVE
 - 55557 WEEKLYRESOURCEESTCURVE
 - 55558 WEEKLYRESOURCEALLOCCURVE
 - 55559 WEEKLYRESOURCEAVAILCURVE
 - 55560 MONTHLYCURRENTBASEPROJUSAGE

Best Practices



Best Practices / Datamart

Timeslices for the Datamart

- The 5 standard daily timeslices are used in the Datamart.
 - Daily slice data is essentially replicated for use in the Datamart. We recommend **keeping the daily timeslices to a minimum**, and using monthly or weekly slices when possible. Given that the Datamart relies on the daily slices we recommend that all new custom reports be written to pull data directly from timeslices at the monthly or weekly level.
 - The **Datamart job and the Timeslicing jobs are set as incompatible**, meaning they will not run at the same time. If the Datamart job is running the Timeslicing job will go into a waiting state until the Datamart job completes. The converse is true as well.
 - The Datamart can take some time to run and is recommended to run on a nightly basis. After a timeslice rollover for the daily slice requests the Datamart will have to “catch-up” and update all the records that were effected by the timeslice rollover. This will result in a **longer Datamart processing time after a timeslice rollover**.
- When timeslice processes a record that will need to be updated in the Datamart, it will update the NBI_EVENTS table. The record in the NBI_EVENTS table will have the object id of the record that needs to be updated and have a status of NOT_PROCESSED. The Datamart job will NULL the status in the NBI_EVENTS table when it processes the record on its next run.

Best Practices / Timeslice Configuration

- Disclaimer: Recommendations to follow are for a normal PPM customer
 - Recommendations assume normal PPM usage
 - Recommendations assume an average size customer of 1000 projects and 1000 users
 - Recommendations assume adequately sized hardware

Best Practices / Timeslice Configuration continued

- Keep Daily slices to a minimum!
- Actuals: If you require daily actual data for a year in the past, we recommend that you set your From Date for the Actuals slice request to the start of the current month 1 year in the past with the Number of Periods to 400. This will store a year in the past as well as a month in the future in case anybody does their timesheet early. If you need to look further back we highly recommend using monthly or weekly data.
- Estimate to Complete: There is no need to slice estimates in the past. We recommend that you set the "From Date" to the start of the current month. If you need to look further than a year in the future we suggest using monthly data.
- Baselines: If your organization doesn't maintain project baselines set the number of periods to Zero. The logical configuration for Baseline slice data should start at the beginning of actuals and extend through estimates. Set the From Date to same From date as actuals slice request and change the number of periods to 730.

Best Practices / Timeslice Configuration continued

- Keep Daily slices to a minimum!
- Availability: The logical configuration for Availability slice data should start at the beginning of actuals and extend through estimates. Set the From Date to same From date as actuals slice request and change the number of to cover the range.
- Allocations: If you are not maintaining allocation at the Project level company wide, you may have no need to maintain slice data for allocation. This is by far the largest portion of slice data, and if it is not entirely valid it can be dramatically reduced. We recommend that if you do not set project level allocation you should set the Number of Periods to 1 for Allocation slice request. This will minimize the amount of data that is being stored for Allocation slices.
- We recommend that you enforce setting project allocations company wide and be sure to properly zero out any remaining/unused allocations. If allocations are set properly on active projects only valid data will be stored in Timeslice therefore dramatically reducing the amount of records needed to maintain allocations.

Best Practices / Timeslice Configuration continued

- General Configuration
 - Monthly slices should always start on the first of a Month
 - Monthly slices should always rollover Monthly, Quarterly or Yearly
 - Weekly slices should start on the same Day of the Week
 - i.e. Sunday or Monday
 - **Daily Rollover should never be used**
 - Frequent rollover causes unnecessary over head

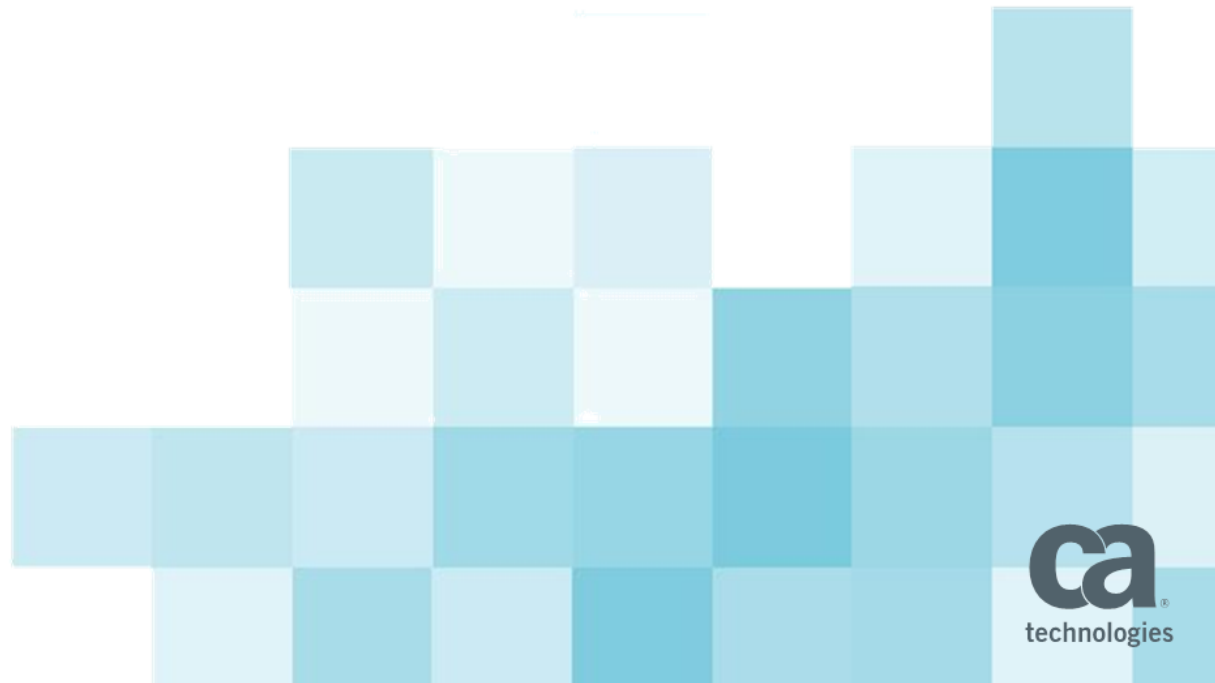
Best Practices / Timeslice Configuration continued

- Modify Slice requests after hours or on a weekend
 - For timing test a reslice in a test environment
- Cascading Reslice
 - Modifying Availability slices forces a reslice of all Allocations
 - This can take quite some time and should be done after hours
 - Modifying a base calendar will reslice all Availability slices and thus allocations
 - This should only be done on a weekend.
 - Highly recommend testing timing in a test environment
 - Will generate a lot of database activity, be mindful of transaction log space in MSSQL
- Datamart run time impact
 - Modifying any of the 5 OOTB Daily slices will cause the datamart to run longer

Best Practices / Incompatible Jobs

- Out-of-the-Box Incompatible Jobs
 - The timeslice job is preconfigured to not run at the same time as the Datamart Extraction Job and the Delete Investments Job. **When the timeslice job runs the reoccurring schedules of those jobs will go to a Waiting state until timeslice finishes.**
- Recommended additional Incompatible Jobs
 - For performance reasons we recommend that you set the following as incompatible in Reports and Jobs administration.
 - Update Hierarchy Data / Update Aggregated Data
 - Investment Allocation
 - Post Timesheets
 - Navigate to Application Administration. Under Data Administration Select Reports and Jobs. Filter for the Time Slicing job. Under the incompatible sub section you can add the additional jobs listed above.
 - **Knowledgebase Article**
 - **TEC435572** — How should I configure my Timeslices in Clarity?

Diagnostics



Diagnostics

- How long is the job going to take to finish?
 - There are too many variables for a generic estimate, however you can count the records that need to be processed and the current rate.
 - You can use the query below to check the status. You'll see the status go from 1 (needs to be sliced), then to 2 (processing), then to NULL (completed). It will go table by table and process 1000 rows at a time.
 - The query below is a sample that counts Assignment (Actuals and ETC), Availability and Allocation slices.

```
SELECT 'Assignment' Slice_Object, Count(*), SLICE_STATUS FROM prAssignment WHERE SLICE_STATUS in (1,2) GROUP BY SLICE_STATUS UNION SELECT 'Allocation' Slice_Object, Count(*),SLICE_STATUS FROM prTeam WHERE SLICE_STATUS in (1,2) GROUP BY SLICE_STATUS UNION SELECT 'Availability' Slice_Object, Count(*),SLICE_STATUS FROM prj_resources WHERE SLICE_STATUS in (1,2) GROUP BY SLICE_STATUS
```

- Knowledgebase Article
 - TEC439078

Diagnostics continued

- Simply: is Timeslice processing?
 - Check the status of the job and see if it is stuck in a Waiting State: If Waiting...
 - Check for incompatible jobs in Processing State
 - If no incompatible jobs running: Cancel, Delete and Recreate the Timeslice job
 - Sometimes it can get stuck waiting on another Timeslice run
 - Remove all Timeslice job schedules, even completed ones to remove the job runs record
 - You can count the records in prj_blb_slices to check the progress on the Timeslice rebuild.
 - The Last Run date will begin to populate when the slices are completed.
 - Select Count (*) from prj_blb_slices
 - You will see this number growing over time if you have increased you Timeslice volume
 - You may see this number fluctuate form normal slicing
 - Check for recently created Timeslice records
Select Max(created_date) from prj_blb_slices

Diagnostics continued

- What is timeslice currently processing?
 - Debug and Info Level Logging
 - Info level logging will write additional lines to the bg-ca.log, that state what timeslice is currently processing. It will also write a line every time it grabs a 1000 rows to be processed. The intervals between each 1000 can be used to estimate a completion time.
 - To enable timeslice debug settings.
 - Log in to the NSA / CSA.
 - Navigate to the Logs tab
 - Click Edit Configuration.
 - If **com.niku.blobcrack** is an available option, please add it and set the Priority value to INFO.
 - If com.niku.blobcrack is NOT an available option please type com.niku.blobcrack in the other name box then click add, and set the Priority value to INFO.
 - Debug logging should only be used when directed by Clarity support and should be turned off as soon as possible as it will effect performance.

Diagnostics continued

- How to Force a reslice of all data or specific records
 - Source table column for Slice_status can be set to 1 to flag for reslice
 - To reslice all records you can simple modify the slice request
 - Alternatively you can set slice_status for all records in the source table
 - prAssignment.slice_status
 - prTeam.slice_status
 - prTeam.hard_slice_status
 - prj_resources.slice_status
 - prTimeentry.slice_status

Diagnostics continued

- How to manually compare if Actuals data is correct
 - First verify the hours on the timesheet, assuming that all actuals come from timesheet data
 - Second verify the hours in Open Workbench in a Daily time scaled view
 - Add assignment actuals to a view and view it tabulated
 - Often issues can be caused by report design issues

Demonstration

In this demonstration, you'll see:

- Timeslicing in action!



Summary

- BLOBs and Timeslices have their own language
- Keep the daily slices at a minimum
- Only slice what is really needed for your business
- Remember you can always get at the BLOB data using OWB or MSP
- Use Info level logging to see what timeslice is processing

Useful knowledgebase articles from support.ca.com website

- TEC435563 - Clarity Timeslice Terminology Explanation
- TEC435571 - How do I track down data discrepancies in Actuals, Estimates or Allocation in Clarity?
- TEC439078 - How do I completely check the status of the timeslice job?
- TEC439075 - How do I read data from the Standard Daily Timeslices?
- TEC435572 - How should I configure my timeslices in Clarity?
- TEC520262 - Unique constraints error - Oracle / Cannot insert duplicate key – Sql server

Closing

Opportunities for additional education:

<http://www.ca.com/us/collateral/learning-paths/na/ca-clarity-ppm-v13-learning-paths.aspx>

To contact our Customer Education team:

- Education Sales
 - Contact CA Education sales to register for a class, order a web based training course, or cancel an existing registration.
 - 1-800-237-9273, option 1
- Education Advisors
 - Contact CA Education Advisors to learn about available education offerings or a specific Learning Path
 - 1-800-237-9273, option 3

Questions?