

SAP BI - Load Schedule Map



Applies to:

SAP BI 7.0 / SAP NetWeaver 2004s For more information, visit the [Business Intelligence homepage](#).

Summary

The solution is intended to help SAP BI Developers / Support team etc to easily find out information regarding process chain executions, schedules, optimal time slot for a new chain etc. It can also be used for various performance optimization activities related to data load performance and process chain execution times. Technically speaking it's built upon the BI Admin cockpit delivered by SAP. It's a highly customized BEx query designed specifically for analysis of different process chain loads happening in the system.

Author: Lijo John

Company: Infosys Technologies Ltd.

Created on: 07 March 2010

Author Bio

Lijo John has been working as an SAP BI consultant with 'Infosys Technologies Ltd' since three years. He is mainly responsible for implementing SAP BW/BI projects and has worked extensively on data modeling and design in BW3.5/BI 7.0 platforms.

Table of Contents

Table of Contents	2
Some interesting applications of the solution	5
Performance optimization by tracking process chains with huge execution times	5
Tracking the deviation in runtime of process chains	5
Tracking execution time for each variant of process chains	5
Finding an optimal time slot for a new chain created.....	6
Gives direct KPIs like start time, end time, freq, duration etc of selected process chains.	6
Query technical details	7
Multiprovider to be used : OTCT_MC21	7
Rows	7
Free Characteristics.....	7
Columns.....	8
Details of RKF/CKFs to be created	9
Start Time:.....	9
Definition	9
Properties.....	9
Start time (for formulas):	9
Definition	9
Properties.....	9
Avg Dur (for formulas):.....	9
Definition	9
Properties.....	9
Endtime (before calculations):	10
Definition	10
Properties.....	10
Endtime (for formulas):.....	10
Definition	10
Properties.....	10
Frequency:	10
Definition	10
Properties.....	10
End Time (before adjustment):	11
Definition	11
Properties.....	11
End time:	11
Definition	11
Properties.....	11
Average Duration in min:.....	11
Definition	11
Properties.....	11
Average Duration in Hours:.....	12
Definition	12
Properties.....	12

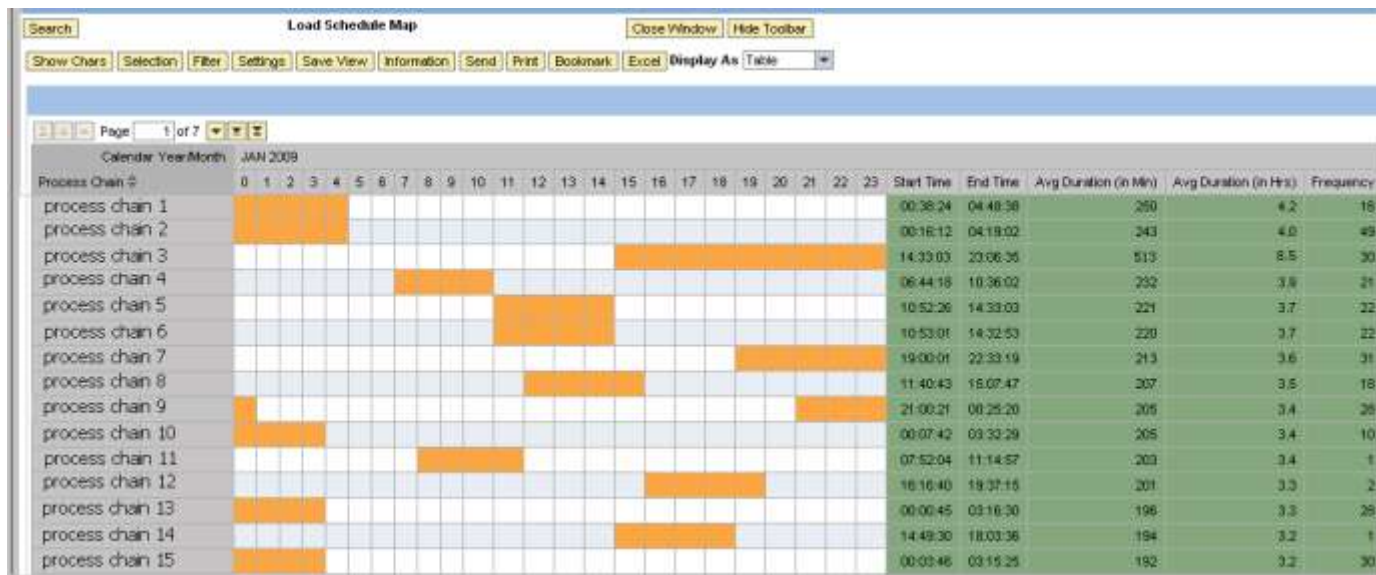
Formula variables 0 to 23:.....	12
Definition	12
Properties.....	12
Exceptions to be set	12
Selection Screen	12
Query display Properties.....	13
Appendix	14
The Logic behind the formula variable 0 to 23.....	14
Related Contents	15
Disclaimer and Liability Notice.....	16

Key Concept

The Load Schedule Map as the name indicates gives you the schedules of the different process chain load happening in your SAP BI/BW system at any given point in time. The schedules are displayed in a simple graphical format across a time scale of 0 to 24 hours. The information provided by the solution can be used in a variety of performance optimization and analysis activities and is especially useful to the production support team and also for the development team during high level designs.

Finer details like the duration of different variants of the chain like DSO load, execute info package, load from PSA, execute DTP, activate DSO etc can be derived through further slice and dice in the report.

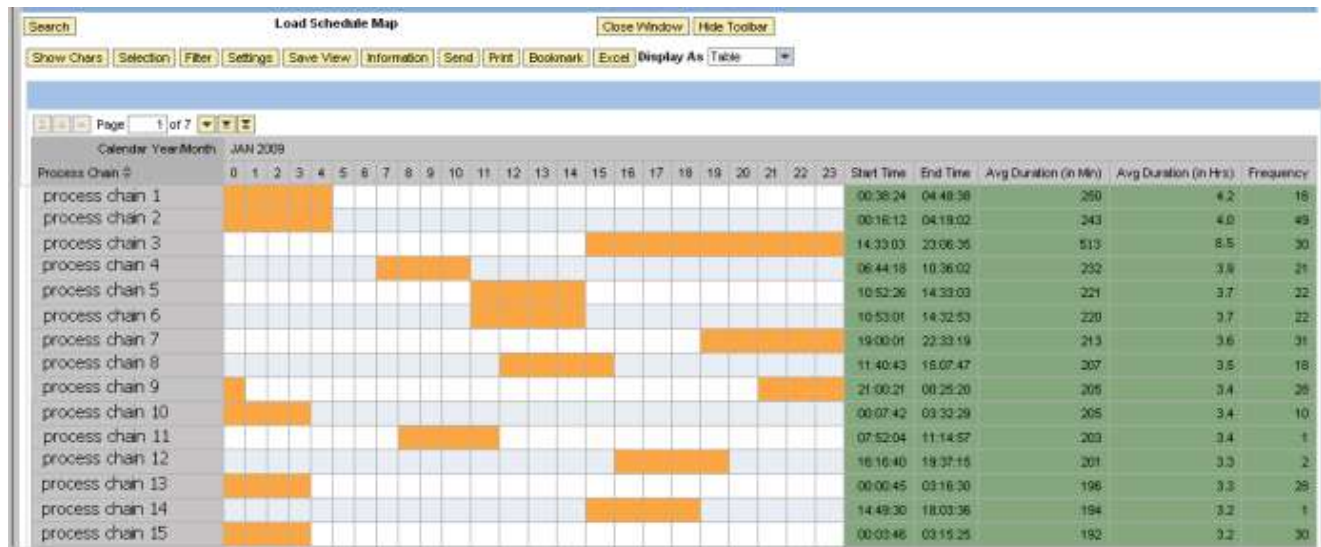
Sample Query Output



Some interesting applications of the solution

Performance optimization by tracking process chains with huge execution times

In the sample screen shot below its seen that the average run time of process chain3 in the month of Jan 2009 is almost 9 hours and may be a potential candidate for performance optimization



Tracking the deviation in runtime of process chains

The deviation of process chain runtimes can be easily tracked by executing the reports across multiple months/days etc. For e.g. in the sample report output below its seen that the runtime for process chain 1 is increasing significantly by every month.



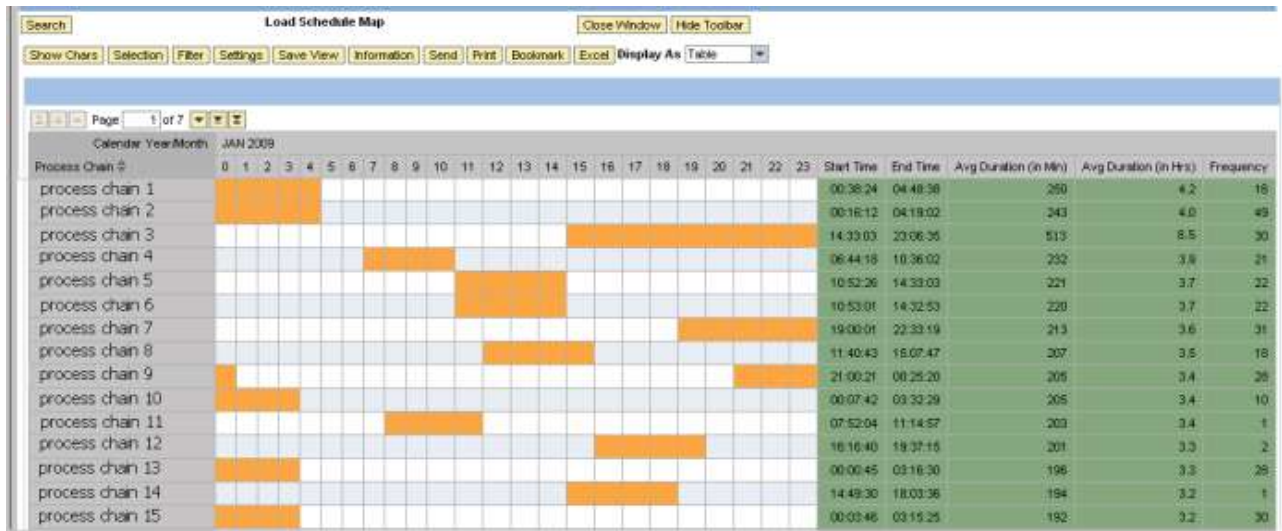
Tracking execution time for each variant of process chains

Once you find chains whose performance needs to be improved, you can jump into finer details like the duration of different variants of the chain like DSO load, execute info package, load from psa, execute DTP, activate DSO etc through further slice and dice in the report. This will further help to pin down the time consuming variants and hence making the analysis easier. For e.g. in the sample report output below its seen that the certain DTP loads and index generations are taking considerably more time than expected.



Finding an optimal time slot for a new chain created

Assume that a new chain is to be deployed whose estimated run time is around 2 hours and needs to get complete before 8 am. By seeing the sample screen shot below, it is evident that hour slot 5 or 6 is the best place to introduce this new chain, since these are the slots where the system is least loaded.



Gives direct KPIs like start time, end time, freq, duration etc of selected process chains.

The solution can also be used to get simple details like the start times, end times, frequencies, duration etc of process chains over a time period. This comes handy when you need to analyze chains that don't have a consistent frequencies, start times or runtimes. Examples are chains that are triggered and not scheduled.

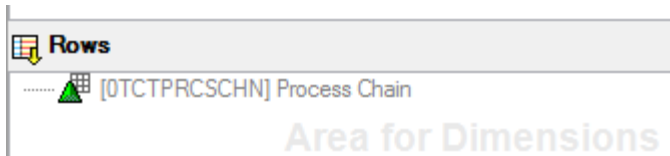


Query technical details

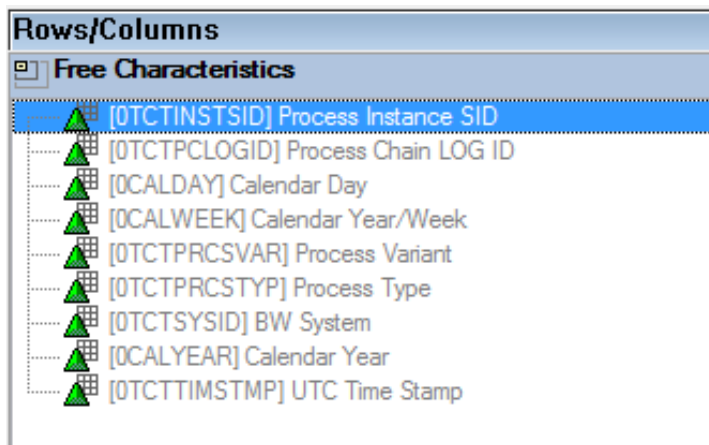
Create a BEx query with the specifications given below. By default a BEx report can display only 20 columns in a single screen. To get the complete report output in single screen, it's recommended to embed the BEx query in a WAD template and set the number of columns according to the number of Key figures you have in your report.

Multiprovider to be used: 0TCT_MC21

Rows



Free Characteristics



Columns

Columns

- Calendar Year/Month
- Key Figures
 - 0
 - 1
 - 2
 - 3
 - 4
 - 5
 - 6
 - 7
 - 8
 - 9
 - 10
 - 11
 - 12
 - 13
 - 14
 - 15
 - 16
 - 17
 - 18
 - 19
 - 20
 - 21
 - 22
 - 23
 - 24
 - Start Time
 - End Time
 - Avg Duration (in Min)
 - Avg Duration (in Hrs)
 - Frequency
 - End Time (before adjustment)
 - Avg Duration in (for fomulas)
 - start time (for fomulas)
 - endtime (for fomulas)
 - endtime (before calculations)
 - Average Duration in Hrs

Details of RKF/CKFs to be created

Start Time:

Definition

```
[OTCTSTRTTIM]
```

Properties

Standard Key figure, Visible

Start time (for formulas):

Definition

```
Detail View  
TIME ( ( 'Start Time' * 1 ) ) / 3600
```

Properties

Local formula, Hidden

Avg Dur (for formulas):

Definition

```
Detail View  
NDIV0 ( ( [OTCTDURTION] / [OTCTSTAUJK] ) )
```

Properties

Global CKF, Hidden

Endtime (before calculations):

Definition

Detail View

```
( '[OTCTSTRTTIM]' + TIME ( '[YGTCT_MC21C_AVG_DUR_SEC]' ) ) / 3600
```

Properties

Local formula, Hidden

Endtime (for formulas):

Definition

Detail View

```
( 'endtime (bfore calculations)' - 24 ) * ( 'endtime (bfore calculations)' > 24 ) +  
↳ 'endtime (bfore calculations)' * ( 'endtime (bfore calculations)' <= 24 )
```

Properties

Local formula, Hidden

Frequency:

Definition

Detail View

```
' [OTCTSTAUIK] '
```

Properties

Local formula, Visible

End Time (before adjustment):

Definition

Detail View

```
TIME ( ( '[OTCTSTRTTIM]' + NODIM( '[YGTCT_MC21C_AVG_DUR_SEC]' ) ) )
```

Properties

Local formula, Hidden

End time:

Definition

Detail View

```
'End Time (before adjustment)' * ( 'endtime (bfore calculations)' <= 24 ) +  
TIME( ( ( 'End Time (before adjustment)' - 84600 ) *  
( 'endtime (bfore calculations)' > 24 ) ) )
```

Properties

Local formula, Visible

Average Duration in min:

Definition

Detail View

```
NODIM( ( '[YGTCT_MC21C_AVG_DUR_SEC]' / 60 ) )
```

Properties

Local formula, Visible

Average Duration in Hours:

Definition

Detail View

```
NODIM( ( '[YGTCT_MC21C_AVG_DUR_SEC]' / 3600 ) )
```

Properties

Local formula, Visible

Formula variables 0 to 23:

Definition

Detail View

```
( ( ( ABS( ( 'start time (for formulas)' - 15 ) ) <= .5 ) AND ( 'endtime (before calculations)' > 15 ) ) +
( ( ( 15 - 'endtime (for formulas)' ) < 0 ) AND ( ( 15 - 'endtime (for formulas)' ) > ( - 1 ) ) ) +
( 'start time (for formulas)' < 15 ) +
( 'endtime (for formulas)' > 15 ) +
( 'Frequency' > 0 ) +
( 'Avg Duration in Sec new' > 0 ) +
( 'start time (for formulas)' > 'endtime (for formulas)' ) * 1 ) >= 4
```

Properties

Local formula, Visible

Exceptions to be set

The following exception should be set for formula variables 0 to 23 created for the time slots

Exception Is Active

Description

Exception to plot load schedule map

Define Exception Values

Alert Level	Operator	Values
Critical 3	Equal	1

Selection Screen

The sample selection screen used in the original solution is shown below. More selections can be added as per specific project requirements

Variable EntryAvailable Variants: [Show Variable Personalization](#)**General Variables**

Variable ⇅	Current Selection	Description
* Cal Year	<input type="text"/>	<input type="text"/>
Calender Month	<input type="text"/>	<input type="text"/>
Calendar Day	<input type="text"/>	<input type="text"/>
Process Chain	<input type="text"/>	<input type="text"/>

 Query display Properties

Display Zeros as blank

Appendix

The Logic behind the formula variable 0 to 23

The formula is a Boolean logic and can be divided into seven sub expressions. At least four of these seven expressions should turn true for a process chain to execute in that particular time slot.

For e.g. if for a particular process chain the value of the 15th formula variable ≥ 4 , that means the chain was running during the 15th hour i.e. during the time slot 15:00 to 16:00.

```

1 ← ( ( ( ABS( ( 'start time (for formulas)' - 15 ) ) <= .5 ) AND ( 'endtime (before calculations)' > 15 ) ) +
2 ← ( ( ( 15 - 'endtime (for formulas)' ) < 0 ) AND ( ( 15 - 'endtime (for formulas)' ) > ( - 1 ) ) ) +
3 ← ( 'start time (for formulas)' < 15 ) +
4 ← ( 'endtime (for formulas)' > 15 ) +
5 ← ( 'Frequency' > 0 ) +
6 ← ( 'Avg Duration in Sec new' > 0 ) +
7 ← ( 'start time (for formulas)' > 'endtime (for formulas)' ) * 1 ) >= 4

```

The table below gives the logical reasoning behind each of the seven Boolean expressions used in the formula variables. At least four of the below sub expressions should be true for a chain to be executing in that particular time slot. ** The last four conditions are required to identify time slots for chains executing across days. For e.g. start time = 10:00 pm and end time = 4:00 am.

Sub Expression id	Reasoning behind the logic
1	Since the time slots are hour based, we need some rounding off in the start time of process chains. For e.g. if a chain starts at 15:28 then it falls in time slot 15 but if it starts at 10:38 it should fall in time slot 11. This logic is done through the first part of the Boolean expression.
2	The second part of the boolean expression takes care of the following exceptional scenario. If a chain starts at 15:38 but ends at 15:45 i.e. not going into the next hour, then it should fall in time slot 15 and not in time slot 16.
3	For a chain to be executing in the current time slot, its start time should be less than the start time of the time slot.
4	For a chain to be executing in the current time slot, its end time should be greater than the start time of the time slot.
5**	A chain is executing only if its frequency >0
6**	A chain is executing only if average duration >0
7**	Start time will be greater than end time for those chains that execute across days For e.g. start time = 10:00 pm and end time = 4:00 am

Related Contents

<http://help.sap.com>

For more information, visit the [Business Intelligence homepage](#).

Disclaimer and Liability Notice

This document may discuss sample coding or other information that does not include SAP official interfaces and therefore is not supported by SAP. Changes made based on this information are not supported and can be overwritten during an upgrade.

SAP will not be held liable for any damages caused by using or misusing the information, code or methods suggested in this document, and anyone using these methods does so at his/her own risk.

SAP offers no guarantees and assumes no responsibility or liability of any type with respect to the content of this technical article or code sample, including any liability resulting from incompatibility between the content within this document and the materials and services offered by SAP. You agree that you will not hold, or seek to hold, SAP responsible or liable with respect to the content of this document.