

Checking Precalculation Server Issues for BEx Analyzer Workbooks in BW 7.X



Applies to:

BW 7.X, Broadcasting, Precalculation Server, BEx Analyzer Workbooks. For more information, visit the [Business Objects homepage](#).

Summary

Precalculation of BEx Analyzer Workbooks delivers the right information at the right time to the right people. This document explains insights of the new precalculation multi-instance server. It focuses on precalculation of BEx Analyzer workbooks and covers in-depth analysis of how to identify and track errors. In addition, it illustrates how failed broadcasting settings can be rescheduled and how timeouts can be used for individual BEx Analyzer workbooks.

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Author Bio

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Introduction

The precalculation server allows to precalculate BEx Analyzer workbooks and to distribute them to their recipients. With BW 7.X a multi-instance version of the precalculation server is available. The first part of this document explains some trouble-shooting strategies. It describes where log files are stored and how they can be read. Furthermore it demonstrates how the precalculation server can be used to identify errors by watching the execution of the precalculation in MS Excel.

The second part describes how failed broadcasting settings can be identified and explains techniques to reschedule them so that in the best case the business user does not even recognize this. Furthermore setting timeouts for individual workbooks are discussed as a mechanism to prevent all broadcaster settings from failing.

In the third part the load-balancing mechanism of the multi-instance server is presented in detail in order to gain understanding how to set up precalculation servers. Correctly set up and sized precalculation servers prevent broadcasting settings from failing. Nevertheless installation of the broadcaster is not part of this document.

Prerequisites for precalculation server in BW 7.X

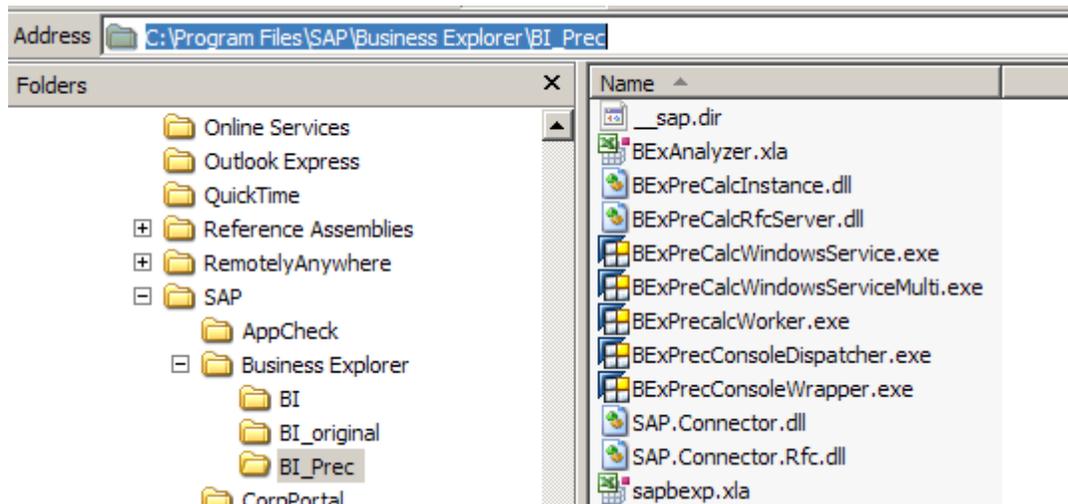
Using the precalculation server in BW 7.X requires the installation of a current SAPGui. Furthermore the installation of the BI 7.X Add-on and BW 3.X Add-on is needed.

For more information please check the following notes:

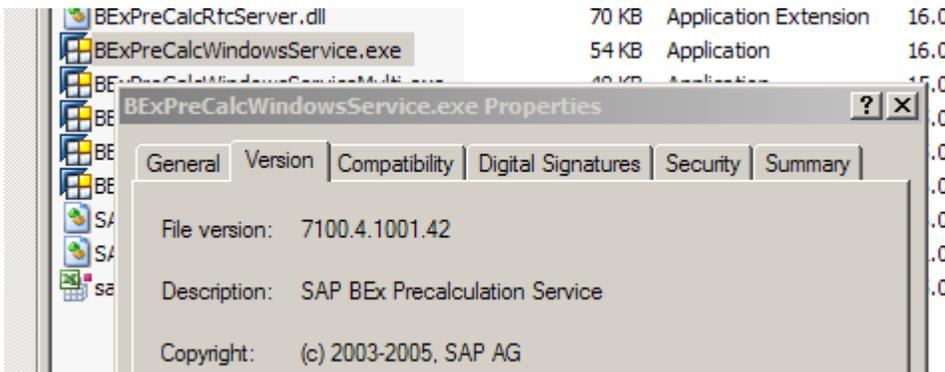
- 1298788 BI 7.X Precalculation - Pre-requisites
- 1236773 BI 7.X Precalculation - General Information & Limitations
- 1013205 Pre-Requirement for BI Precalculation service 710
- 1013139 Prerequisite for BI 7.x and BW 3.x Frontend (BEx Tools)

Identifying the installed version

To identify the installed version of the precalculation server please open the windows explorer and navigate to the directory in which the precalculation server is installed. Usually this is "C:\Program Files\SAP\Business Explorer\BI_Prec". Here you find some files according to the screenshot below.



Right click on a program and display the properties of it. Here you can find the version information.

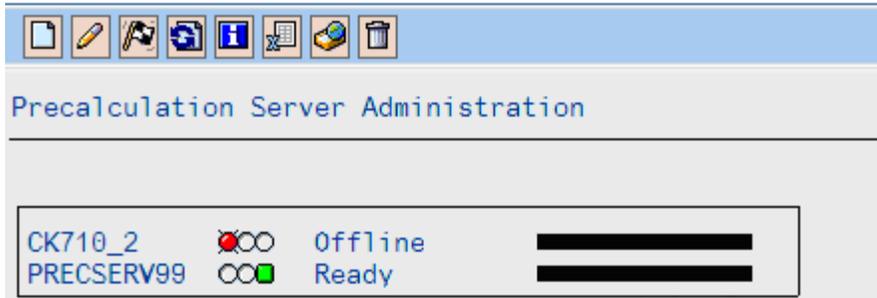


In the above screenshot the file version is 7100.4.1001.42. The first and the third number are important here. This means BW 7.10 and the Support package 10 Patch 01.

Checking if the precalculation server is up and running

To check if a precalculation server is setup and running correctly start transaction RSPRECADMIN. If the status traffic light is green, the precalculation server is running. In the screenshot below the precalculation server PRECSERV99 is working fine but precalculation server CK710_2 is not running.

SAP BW Excel Precalculation -Administration-

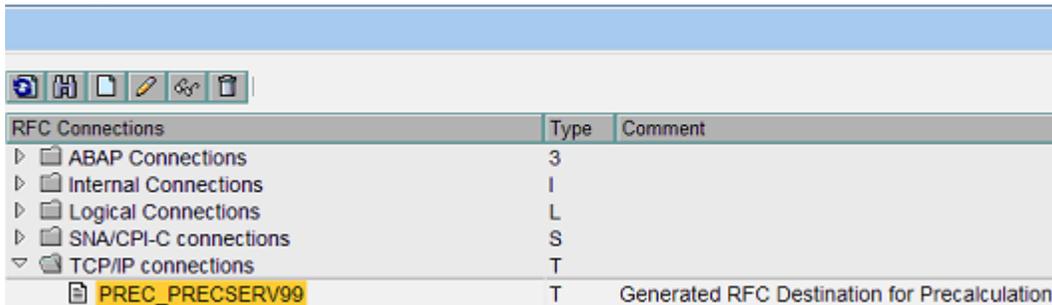


If the status is not green, please restart the precalculation server on the Windows systems. The host name is shown in the last column of a row. To start the precalculation server choose START->Settings -> Control Panel -> Administrative tools -> services. The following picture shows a screenshot of the running “SAP BW Precalculation Service Multi Instance”.



If there are problems starting and executing the precalculation server, please also verify if the BEx Analyzer installation is correct. Therefore, please start the BEx Analyzer manually and execute a BEx Analyzer workbook as a test. If this is working correctly, use transaction RRMX to start the BEx Analyzer from the backend and see if this works. Testing the RFC connection can be done in transaction SM59. In folder TCP/IP connections you can see a generated RFC connection for the precalculation server. The RFC connection has the prefix “PREC_” which is followed by the name of the precalculation server.

Configuration of RFC Connections



A double click on the name shows the details. Testing the connection is possible here by clicking the button “Connection Test”.

RFC Destination PREC_PRECSERV99

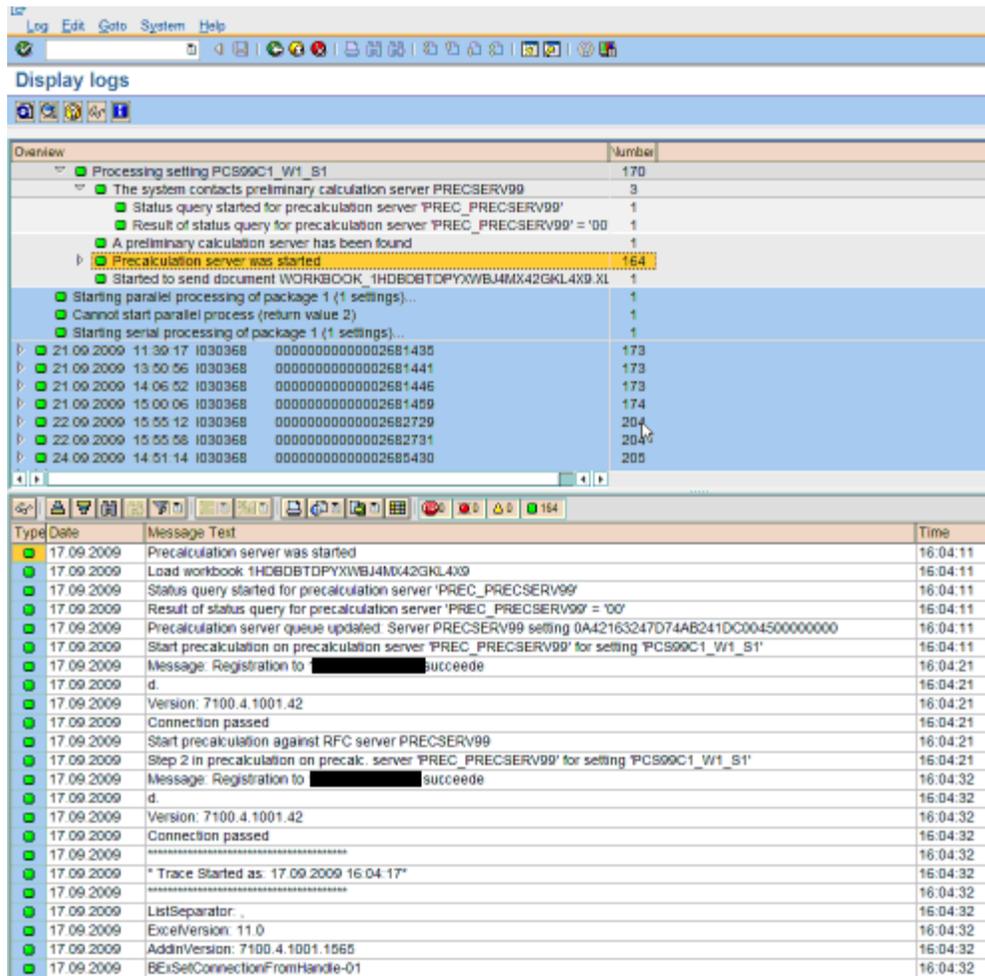
Connection Test		Unicode Test			
RFC Destination	PREC_PRECSERV99				
Connection Type	T	TCP/IP Connection		Description	
Description					
Description 1	Generated RFC Destination for Precalculation				
Description 2					
Description 3					
Administration Technical Settings Logon & Security MDMP & Unicode Special Options					
Activation Type					
<input type="radio"/> Start on Application Server <input checked="" type="radio"/> Registered Server Program <input type="radio"/> Start on Explicit Host <input type="radio"/> Start on Front-End Work Station					
Registered Server Program					
Program ID	4AB0B2812DEC452DE10000000A421631				
Start Type of External Program					
<input checked="" type="radio"/> Default Gateway Value <input type="radio"/> Remote Execution <input type="radio"/> Remote Shell <input type="radio"/> Secure Shell					
CPI-C Timeout					
<input checked="" type="radio"/> Default Gateway Value <input type="radio"/> Specify Timeout <input type="text" value="60"/> Defined Value in Seconds					
Gateway Options					
Gateway Host	<input type="text" value="██████████"/>				<input type="button" value="Delete"/>
Gateway service	<input type="text" value="33██████████"/>				

Checking log files

A convenient way of issue analysis is to start looking at some log files. The precalculation server is writing two types of log files which can be checked. One log shows the information of a precalculation in the SAP backend. It contains information of the SAP job scheduling and about the current precalculation process. This is the standard log an end-user is interested in and is usually reviewed by an admin. The other log shows information on the MS Windows server where the precalculation of BEx Analyzer workbooks is executed. It contains valuable information generated by the precalculation server on the MS Windows side. In the following sections, both logs are discussed.

Checking log files in the SAP backend

Showing the log in the SAP backend is done by transaction **RSRD_LOG**. Transaction RSRD_LOG reads the logs of the precalculation server from the application log and displays them. This is the standard log an administrator is checking. The screenshot below shows an example of a successful precalculation.

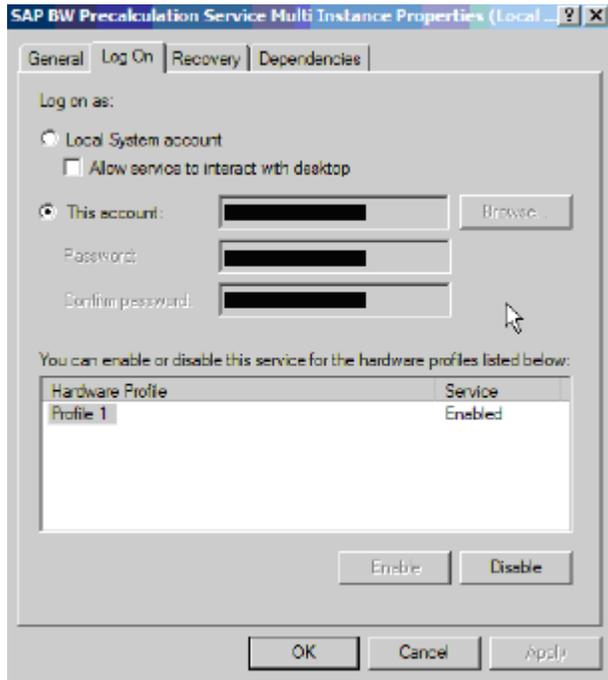


Checking the log files on the MS Windows server

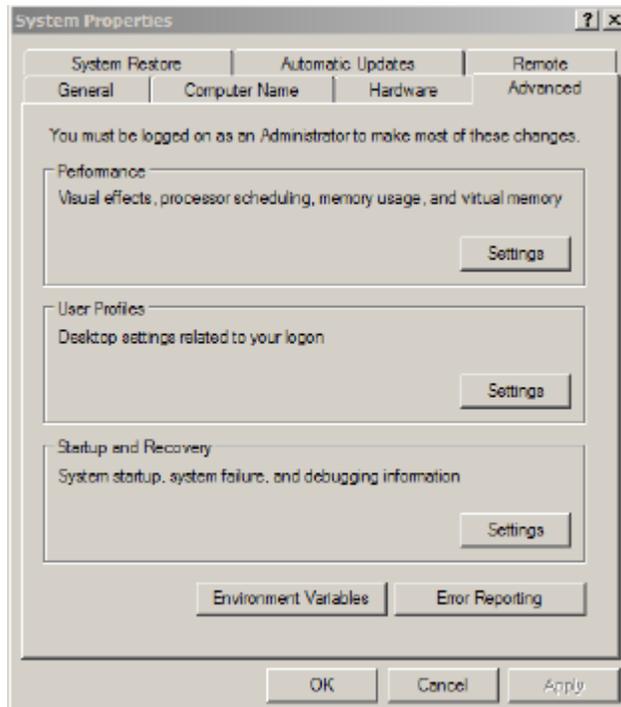
Checking the log file on the MS Windows server can be done with a simple editor (e.g. notepad). In the following we refer to the log file as trace file. The file is stored in the temporary file directory. To determine the file name of the trace file the directory for temporary files needs to be determined first. The next section shows how to identify the name of the temporary directory.

Getting the temp directory

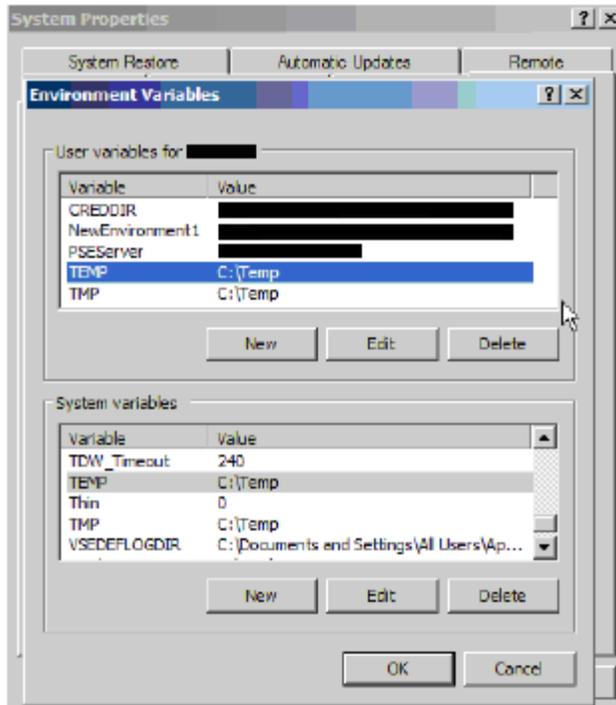
The directory of the trace files depends on the temp directory in MS Windows. The Windows server uses the environment variable TEMP which stores the name of the directory. Please note that the TEMP variable has two settings: a global system variable setting and a user dependent setting. Which setting of the environment variable is used by the precalculation server depends on the configuration in your Windows server. If the precalculation server is running as "Local System account", the global system setting is used. If the precalculation server runs under a specific user account, the user specific setting is used. SAP recommends using a specific user account. The user should have administrator privileges. The reason is that the processes are not run as system processes. Therefore it is easier to identify issues or to kill them if necessary. The next screen shot shows the context menu of the "SAP BW Precalculation Service Multi Instance" where the "Log on" information can be found.



The environment variables can be found in the Windows system properties (Start -> Settings -> Control Panel -> System). In tab "Advanced" the button "Environment Variables" shows the variables .



The next image displays the user variables and the system variables .



The screenshot above shows that the environment variables point to “C:\Temp”. The trace files of the precalculation server are stored there in the subdirectory “BW\Analyzer”. In total, this leads to the directory name “C:\Temp\BW\Analyzer” which is used by the precalculation server in this example.

Checking the precalculation server trace files

Traces and intermediate workbooks can be found in temp directory. Usually this is set to “C:\Temp\BW\Analyzer” as explained in the previous section. Precalculated BEx Analyzer workbooks are stored in the subdirectory “Workbooks”. Trace files are stored in the subdirectory “Traces”. The trace itself is stored in file “BExPrecalLog.txt”. Below we see a screenshot of a trace file. It shows the successful execution of a precalculation setting.

```

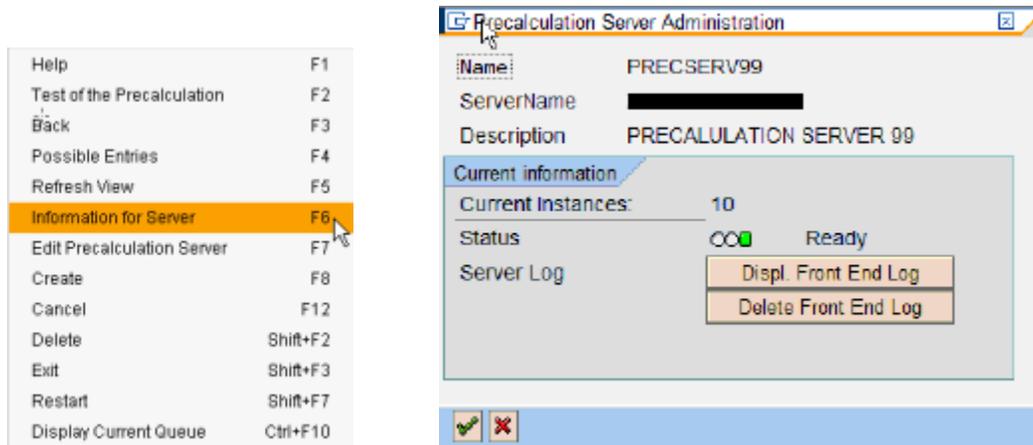
*****
^ Trace started as: 01.10.2009 08:11:07^
*****

Remote Trace enabled
I,611,Starting Precalcservice PRECSERV99,PRECSERV99
I,613,All instances initialized. Host started
PRECSERV99:1,612,try to initialize Event Queue
PRECSERV99:1,613,All instances initialized. Host started
PRECSERV99:Starting Host with 0:-a4A80828120EC452DE1000000A421631, 1:-g[REDACTED], 2:-x[REDACTED]
PRECSERV99:Host started
PRECSERV99:01.10.2009 08:11:08 (0) -> The connection to the server [REDACTED] was broken
PRECSERV99:01.10.2009 08:11:08 (1) -> The connection to the server [REDACTED] was broken
PRECSERV99:01.10.2009 08:11:08 (1) -> Exception: connect to SAP gateway failed:connect_PM TPNAME=4A80828120EC452DE1000000A421631, GWHOST=[REDACTED], GWSERV=[REDACTED]
PRECSERV99:01.10.2009 08:11:08 (0) -> exception: connect to SAP gateway failed:connect_PM TPNAME=4A80828120EC452DE1000000A421631, GWHOST=[REDACTED], GWSERV=[REDACTED]
PRECSERV99:01.10.2009 08:11:38 (0) -> Trying to reconnect. - 2
PRECSERV99:01.10.2009 08:11:38 (1) -> Trying to reconnect. - 2
PRECSERV99:01.10.2009 10:40:41 (1) -> RS_PREC_GET_SERVER_STATUS invoked.
PRECSERV99:01.10.2009 10:40:41 (1) -> RS_PREC_GET_SERVER_STATUS finished
PRECSERV99:01.10.2009 11:46:54 (0) -> RS_PREC_GET_SERVER_STATUS invoked.
PRECSERV99:01.10.2009 11:46:54 (0) -> RS_PREC_GET_SERVER_STATUS finished
PRECSERV99:01.10.2009 11:46:57 (1) -> RS_PREC_GET_SERVER_STATUS invoked.
PRECSERV99:01.10.2009 11:46:57 (1) -> RS_PREC_GET_SERVER_STATUS finished
PRECSERV99:01.10.2009 11:46:58 (0) -> RS_PREC_LAUNCH_EXCEL invoked in thread 0 and job 'BIBCAS74F91QJ6L0UCGQE5F0M451DCMQ'.
PRECSERV99:01.10.2009 11:46:58 (0) -> IntConnection in thread 0
PRECSERV99:using Version 7100.4.1001.23 of BEXAnalyzer.xls
PRECSERV99:10/1/2009 11:47:10 AM (0) -> EndOfInitConnection in thread0
PRECSERV99:10/1/2009 11:47:10 AM (0) -> RS_PREC_LAUNCH_EXCEL finished
PRECSERV99:01.10.2009 11:47:15 (1) -> Calculation Request 0A42163249814AC47A9100E90000000 received for job 'BIBCAS74F91QJ6L0UCGQE5F0M451DCMQ'.
PRECSERV99:01.10.2009 11:48:15 (2) -> Workbook C:\Temp\BW\Analyzer\workbooks\SAPBEXPRECZX7WN3P04ISCLZ5P4FY729675_0.xls 1 minutes in processing, timeout is 10
PRECSERV99:10/1/2009 11:48:40 AM (1) -> Leavers_PREC_PRECALULATEI
PRECSERV99:10/1/2009 11:48:40 AM (1) -> Calculation Request 0A42163249814AC47A9100E90000000 finished in job 'BIBCAS74F91QJ6L0UCGQE5F0M451DCMQ'.
PRECSERV99:k11TimeAsync: Entry
PRECSERV99:01.10.2009 11:48:40 (3) -> Host will be stopped.
PRECSERV99:10/1/2009 11:48:46 AM (0) -> The connection to the server [REDACTED] was broken
PRECSERV99:10/1/2009 11:48:46 AM (0) -> Exception: Thread was being aborted.
PRECSERV99:01.10.2009 11:48:50 (3) -> Host was stopped.
PRECSERV99:
PRECSERV99:
PRECSERV99:10/1/2009 11:48:51 AM (1) -> The connection to the server [REDACTED] was broken
PRECSERV99:10/1/2009 11:48:51 AM (1) -> Exception: Thread was being aborted.
PRECSERV99:k11TimeAsync: before kill
PRECSERV99:1,612,try to initialize Event Queue
PRECSERV99:1,613,All instances initialized. Host started
PRECSERV99:Starting Host with 0:-a4A80828120EC452DE1000000A421631, 1:-g[REDACTED], 2:-x[REDACTED]
PRECSERV99:Host started

```

The log above explains that the precalculation was executed on precalculation server PRECSERV99. You can find the job ID of the SAP backend job in the log as well as the time when the precalculation was executed. After the job has been finished successfully, the connection broke down, because the BExPrecalWorker process is restarted after each precalculation. This behavior is normal and is explained in a later section of this document.

An alternative to the above mentioned procedure in retrieving the trace file is to use transaction RSPRECADMIN. Select the precalculation server, open the context menu (right mouse click) and choose "information for server". Now take a look at the trace file by clicking the button "Displ.Front.End Log".



Identifying errors in the trace files

The trace shown in the last section displays the successful execution of a precalculation setting. The next example shows a trace of a BEx Analyzer workbook which requires a confirmation from the user in a pop-up window. This represents a common error class in BEx Analyzer workbooks. The precalculation server is processing the BEx Analyzer workbook which is waiting for the user input. However in a precalculation scenario, no user input is possible. Because of this the precalculation of this BEx Analyzer workbook runs into a timeout as we can see in the trace file below. The timeout is set to 10 minutes. This means that the BEx Analyzer workbook needs to be precalculated in 10 minutes. If this is not the case the precalculation server interrupts the precalculation of the BEx Analyzer workbook when the timeout is reached. The workbook precalculation stops and the execution of this broadcasting setting is finished as not successful.

```

PRECSEVR99:10/1/2009 11:48:51 AM (1) -> The connection to the server ██████████ was broken
PRECSEVR99:10/1/2009 11:48:51 AM (1) -> Exception: thread was being aborted.
PRECSEVR99:killmeAsync: before kill
PRECSEVR99:1,612,try to initialize Event Queue
PRECSEVR99:1,613,all Instances initialized. Host started
PRECSEVR99:starting Host with 0:-34A8062812Dec452DE10000000A421631, 1:-g██████████, 2:-x██████████
PRECSEVR99:Host started
PRECSEVR99:01.10.2009 13:13:00 (0) -> RS_PREC_GET_SERVER_STATUS invoked.
PRECSEVR99:01.10.2009 13:13:00 (0) -> RS_PREC_GET_SERVER_STATUS finished.
PRECSEVR99:01.10.2009 13:13:02 (1) -> RS_PREC_GET_SERVER_STATUS invoked.
PRECSEVR99:01.10.2009 13:13:02 (1) -> RS_PREC_GET_SERVER_STATUS finished.
PRECSEVR99:01.10.2009 13:13:02 (0) -> RS_PREC_LAUNCH_EXCEL invoked in thread 0 and job 'BIBCAST4F91QLQRCDKXKMTMMW8E0X82'.
PRECSEVR99:01.10.2009 13:13:02 (0) -> InitConnection in thread 0
PRECSEVR99:using Version 7100.4.1001.23 of BEXAnalyzer.xla
PRECSEVR99:10/1/2009 1:13:05 PM (0) -> EndOfInitConnection in thread 0
PRECSEVR99:10/1/2009 1:13:05 PM (0) -> RS_PREC_LAUNCH_EXCEL finished
PRECSEVR99:01.10.2009 13:13:07 (1) -> Calculation request 0A4216320AD64AC48EBE00000000000 received for job 'BIBCAST4F91QLQRCDKXKMTMMW8E0X82'.
PRECSEVR99:01.10.2009 13:15:07 (3) -> Workbook C:\Temp\BW\Analyzer\Workbooks\SAPBEXPREC7KI3X8Y18V947P5004DQG4V33_0.xls 1 minutes in processing, timeout is 10
PRECSEVR99:01.10.2009 13:15:07 (4) -> Workbook C:\Temp\BW\Analyzer\Workbooks\SAPBEXPREC7KI3X8Y18V947P5004DQG4V33_0.xls 2 minutes in processing, timeout is 10
PRECSEVR99:01.10.2009 13:16:07 (5) -> Workbook C:\Temp\BW\Analyzer\Workbooks\SAPBEXPREC7KI3X8Y18V947P5004DQG4V33_0.xls 3 minutes in processing, timeout is 10
PRECSEVR99:01.10.2009 13:17:07 (6) -> Workbook C:\Temp\BW\Analyzer\Workbooks\SAPBEXPREC7KI3X8Y18V947P5004DQG4V33_0.xls 4 minutes in processing, timeout is 10
PRECSEVR99:01.10.2009 13:18:07 (7) -> Workbook C:\Temp\BW\Analyzer\Workbooks\SAPBEXPREC7KI3X8Y18V947P5004DQG4V33_0.xls 5 minutes in processing, timeout is 10
PRECSEVR99:01.10.2009 13:19:07 (8) -> Workbook C:\Temp\BW\Analyzer\Workbooks\SAPBEXPREC7KI3X8Y18V947P5004DQG4V33_0.xls 6 minutes in processing, timeout is 10
PRECSEVR99:01.10.2009 13:20:07 (9) -> Workbook C:\Temp\BW\Analyzer\Workbooks\SAPBEXPREC7KI3X8Y18V947P5004DQG4V33_0.xls 7 minutes in processing, timeout is 10
PRECSEVR99:01.10.2009 13:21:07 (10) -> Workbook C:\Temp\BW\Analyzer\Workbooks\SAPBEXPREC7KI3X8Y18V947P5004DQG4V33_0.xls 8 minutes in processing, timeout is 10
PRECSEVR99:01.10.2009 13:22:07 (11) -> Timeout 10 reached for workbook C:\Temp\BW\Analyzer\Workbooks\SAPBEXPREC7KI3X8Y18V947P5004DQG4V33_0.xls
PRECSEVR99:10/1/2009 1:23:07 PM (1) -> LEAVERS_PREC_PRECALULATE1
PRECSEVR99:10/1/2009 1:23:08 PM (1) -> Calculation Request 0A4216320AD64AC48EBE00000000000 finished in job 'BIBCAST4F91QLQRCDKXKMTMMW8E0X82'.
PRECSEVR99:killmeAsync: Entry
PRECSEVR99:01.10.2009 13:23:08 (12) -> Host will be stopped.
PRECSEVR99:01.10.2009 13:23:09 (12) -> Host was stopped.
PRECSEVR99:
PRECSEVR99:

```

The trace could also be an example for a visual basic error in the BEx Analyzer workbook. If this is the case the debugger opens up in MS Excel and waits for user input as well. This result is a similar error and the workbook times out as well.

Starting the precalculation server in console mode

The standard use in a production environment is to start the “SAP BW Precalculation Service Multi Instance” as a service. Nevertheless, SAP offers a console mode for the precalculation server. The next sections show how this mode can be used and how it can be started.

Switching to the precalculation server console mode

Typically, the precalculation server is started as a service. But for testing or debugging sessions it is possible to start the precalculation server in console mode, too. This is helpful when errors occur. It shows in detail what is happening. Starting the Broadcaster in console mode can be done easily. The steps below describe how to achieve this.

1. Stop the SAP precalculation service (START->Settings -> Control Panel -> Administrative tools -> services)

Routing and Remote Access	Offers rout...	Disabled	Local System
SAP BW Precalculation Service		Manual	Local System
SAP BW Precalculation Service Multi Instance		Started	Automatic
Secondary Logon	Enables st...	Started	Automatic

2. Use the Windows task manager to ensure that no MS Excel instance is running. Running processes can be found on the tab “processes”. If you find MS Excel instances in the task manager please end those processes manually.

3. Now start the precalculation server in console mode by starting the program C:\Program Files\SAP\Business Explorer\BI_Prec\BExPrecConsoleDispatcher.exe

Folder	SAP			
Folder	AppCheck			
Folder	Business Explorer			
File	BExPrecalcWorker.exe	52 KB	Application	15.09.2009 05:03
File	BExPrecConsoleDispatcher.exe	52 KB	Application	15.09.2009 05:03
File	BExPrecConsoleWrapper.exe	52 KB	Application	16.09.2009 05:18

This will open two consoles. One is the BExPrecConsoleDispatcher and the other one is the BExPrecalcWorker. The BExPrecConsoleDispatcher controls the BExPrecalcWorker processes. It starts the BExPrecalcWorker process and assigns a workbook which should be precalculated. Finally, the BExPrecalcWorker process kills itself when the precalculation of the workbook has been finished and BExPrecConsoleDispatcher starts a new BExPrecalcWorker process. During this period, the precalculation server has a red status in transaction RSPRECADMIN.

```

C:\Program Files\SAP\Business Explorer\BI_Prec\BExPrecConsoleDispatcher.exe
01.10.2009 14:57:53 (0) -> I,611,Starting Precalcservice PRECSERU99,PRECSERU99
start in remotng
01.10.2009 14:57:53 (0) -> Remote Trace enabled
01.10.2009 14:57:53 (0) -> I,613,All Instances initialized. Host started
PRECSERU99:I,612,try to initialize Event Queue
PRECSERU99:I,613,All Instances initialized. Host started
PRECSERU99:Starting Host with 0:-a4aB0B2812DEC452DE10000000A421631, 1:-g10.66.22
.49, 2:-x3369
PRECSERU99:Host started

C:\Program Files\SAP\Business Explorer\BI_Prec\BExPrecalcWorker.exe

```

Showing the precalculation of a BEx Analyzer workbook in precalculation server console mode

Start the precalculation server in console mode as explained above. In the BExPrecalcWorker console, you can enter "QUIT" to quit or "SHOWEXCEL" to display MS Excel when the BEx Analyzer workbook is processed. Once SHOWEXCEL was typed in and <ENTER> has been hit, the BExPrecalcWorker will open MS Excel when a request to precalculate a BEx Analyzer workbook in MS Excel is processed. This allows us to see the execution of the precalculation in MS Excel. If MS Excel needs user interaction as explained in the example above, this can be identified easily now. The user interaction screens (e.g. pop-up or error message) can be seen now. When the precalculation has finished, MS Excel will be closed by the BExPrecalcWorker again. The BExPrecalcWorker process kills itself and a new BExPrecalcWorker is started by the BExConsoleDispatcher and is waiting for a new precalculation task. To start up MS Excel again, you need to type in SHOWEXCEL again in the new BExPrecalcWorker. Entering SHOWEXCEL in the BExPrecConsoleDispatcher is possible as well. This influences all new BExPrecalcWorker processes.

```

C:\Program Files\SAP\Business Explorer\BI_Prec\BExPrecConsoleDispatcher.exe
01.10.2009 14:57:53 (0) -> I,611,Starting Precalcservice PRECSEU99,PRECSEU99
start in remoting
01.10.2009 14:57:53 (0) -> Remote Trace enabled
01.10.2009 14:57:53 (0) -> I,613,All Instances initialized. Host started
PRECSEU99:I,612,try to initialize Event Queue
PRECSEU99:I,613,All Instances initialized. Host started
PRECSEU99:Starting Host with 0:-a4aB0B2812DEC452DE10000000A421631, 1:-g10.66.22
.49, 2:-x3369
PRECSEU99:Host started

C:\Program Files\SAP\Business Explorer\BI_Prec\BExPrecalcWorker.exe
SHOWEXCEL
  
```

An alternative to typing in SHOWEXCEL is to change an entry in the Windows Registry. Start "regedit" and choose HKEY_LOCAL_MACHINE\SOFTWARE\SAP\BEx -> SHOWEXCEL=True. Please note that you need to use the console mode in this case as well.

Other relevant registry entries:

- Delete the precalculated BEx Analyzer workbooks or keep them (Default = False)
 - HKEY_CLASSES_ROOT\SAP.BusinessExplorer.Analyzer\BW_PRECALC -> KEEP_FILES=True
- Number of tries to create an MS Excel instance (default = 60 (one hour))
 - HKEY_CLASSES_ROOT\SAP.BusinessExplorer.Analyzer\BW_PRECALC -> INSTANCE_RETRY_COUNT= 60
- Switch on/off trace recording (see note 1296081)
 - HKEY_CLASSES_ROOT\SAP.BusinessExplorer.Analyzer\BW_PRECALC -> PREC_TRACE= True

Setting timeouts for BEx Analyzer workbooks

The last sections explained that trace files show the timeout for a BEx Analyzer workbook. If the precalculation server times out, this could have several reasons. We have seen one common error class in a section above: The BEx Analyzer workbook was waiting for some user interaction. Another reason could be that the precalculation of a BEx Analyzer workbook is so time consuming that the precalculation can not be finished in a given time frame. This situation can be cured by extending the time frame. The timeout for a BEx Analyzer workbook can be defined for each BEx Analyzer workbook individually in table **RSR_PREC_TIMEOUT**. Transaction SE16 can be used to edit the entries in this table. Please note that this table contains the default value as well. It is the entry where the workbook ID is empty. In the screenshot below the default timeout value is set to 10 minutes. Entering a timeout of 0 minutes has the meaning of not using the timeout feature for the specified BEx Analyzer workbooks. Setting timeouts was introduced with note 1371345.

Data Browser: Table RSR_PREC_TIMEOUT

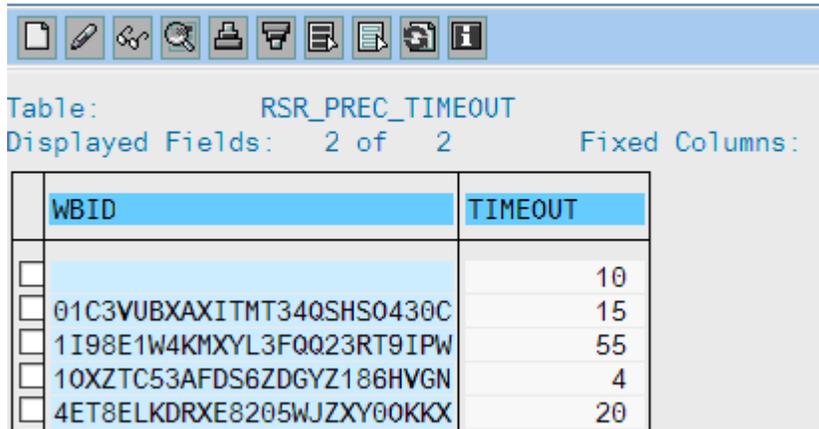


Table: RSR_PREC_TIMEOUT
Displayed Fields: 2 of 2 Fixed Columns:

WBID	TIMEOUT
	10
01C3VUBXAXITMT34QSHS0430C	15
1I98E1W4KMYL3FQQ23RT9IPW	55
10XZTC53AFDS6ZDGYZ186HVGX	4
4ET8ELKDRXE8205WJZXY00KXX	20

But how can we know if a BEx Analyzer workbooks times out because of an error or simply because it needs more time to finish calculation? The symptoms in the trace are the same. It would be easy, if we could analyze what is happening in MS Excel during the precalculation. We could recognize if errors occur, a dialog box is shown or if the timeout is hit. The solution to this is to use the precalculation server in console mode. This has been explained in the last section.

Restarting the precalculation of failed broadcasting settings

If broadcasting settings fail to execute some important information may be missing for a business user. Therefore it is necessary to keep track which broadcasting settings failed and if possible reschedule them automatically. In the best case the business user does not even notice this. The next section focuses on this topic and demonstrates how this can be implemented.

Identifying failed broadcasting settings

It may happen that the precalculation server fails to execute broadcasting settings successfully. There are several reasons for this, e.g. overload of the precalculation server or an error in a workbook. Usually the log files keep track which setting finished successfully and which setting failed. Note 1371901 implements a new feature which allows checking the failed broadcasting settings in a more convenient way. Once the note has been implemented, the ABAP backend keeps track of failed settings and stores them in table **RSR_PREC_SETT**. The content of this table shows which broadcasting setting processing failed and how often it failed per day.

Table: RSR_PREC_SETT

Displayed Fields: 3 of 3

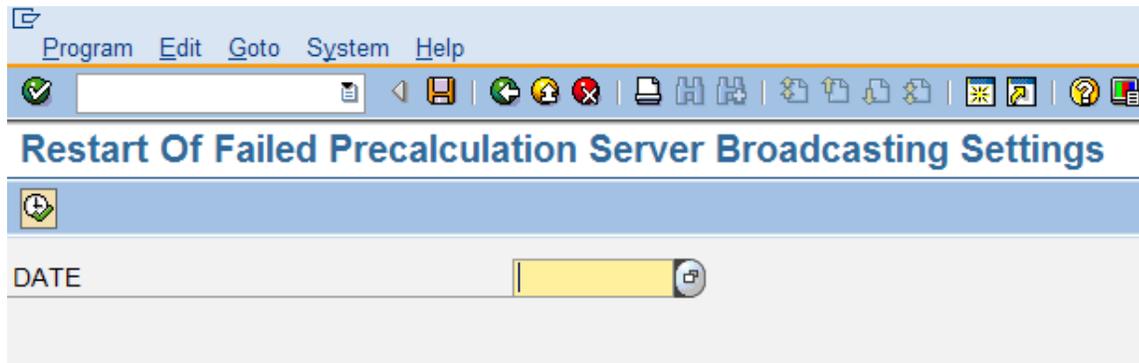
Fixed Columns:

	SETTING_ID	RUN_DATE	RETRY_COUNT
<input type="checkbox"/>	PCS99C1_W1_S1	01.10.2009	0
<input type="checkbox"/>	PCS99C1_W3_S2	28.09.2009	10
<input type="checkbox"/>	PCS99C1_W3_S2	29.09.2009	0
<input type="checkbox"/>	PCS99C1_W3_S3	28.09.2009	9

Using the information provided in the table RSR_PREC_SETT allows first to check the failed broadcasting settings and second it allows to restart the failed broadcasting settings using report RSR_PREC_SETTINGS_RESTART as described below. Furthermore, it is possible to schedule the report to ensure that for example each hour the failed settings are reprocessed. Another typical example would be to start the report at a certain period after the data load process chain finished.

Restarting all failed broadcasting settings

Failed settings are stored in table RSR_PREC_SETT together with the date of the failed run. To rerun all failed broadcasting settings, report **RSR_PREC_SETTINGS_RESTART** can be used (see note 1371901). The report restarts them all in parallel jobs. If you have lots of failed broadcasting settings, it can happen that some settings timeout again. In this case, it is possible to restart the mentioned report over and over again until all settings have been processed successfully



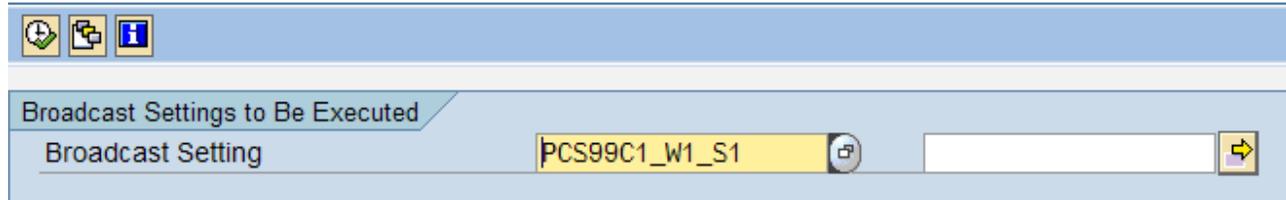
Some examples of how report RSR_PREC_SETTINGS_RESTART can be used:

1. Start report RSR_PREC_SETTINGS_RESTART manually in transaction SE38
2. Schedule report RSR_PREC_SETTINGS_RESTART as job to run at a certain time interval (e.g. each hour or at 4 o'clock AM)
3. Schedule report RSR_PREC_SETTINGS_RESTART to run after a certain time period after the loading process chain has finished. In this situation we assume that the precalculation settings are subscribed to the data changed event of an infoprovider. Loading the data is done in a process chain. Executing the process chain leads to data changes into the infoprovider and executes the data changed event in the process chain. This way the precalculation of some settings is started in new jobs. The jobs are executed in parallel. Now at the end of the execution of the process chain the precalculation job may still be running. Therefore wait a certain period of time to make sure the precalculation job can finish. After waiting report RSR_PREC_SETTINGS_RESTART can be scheduled to reprocess the failed settings.

Restarting single broadcasting settings

Another option to restart broadcasting settings is provided by report **RSRD_BROADCAST_BATCH**. It allows restarting a single broadcasting setting. You can e.g. identify your failed broadcasting settings in table **RSR_PREC_SETT** and restart them one by one using the report **RSRD_BROADCAST_BATCH**. The report can also be used to directly schedule a new precalculation setting.

Scheduling of Broadcast Settings



In general **RSRD_BROADCAST_BATCH** should be used. For debugging purposes report **RSRD_BROADCAST_STARTER** can be used to start a single broadcasting setting. Please note that the “execute online” flag in report **RSRD_BROADCAST_STARTER** may be helpful to debug the execution but this feature executes the precalculation setting not with the user defined in the setting but with the user who is currently running this report. This may lead to different results if e.g. the authorizations are set up differently.

Some sample scenarios where report **RSRD_BROADCAST_BATCH** can be useful:

1. We assume that the precalculation of some broadcasting settings failed and there is one setting which is more important than other settings and needs to be rescheduled immediately. There are several reasons for this. It could be that e.g. the recipient is more important or that e.g. a business user recognized the missing data and needs it as soon as possible. Once you have restarted your failed setting you can restart the other settings using report **RSR_PREC_SETTINGS_RESTART**.
2. Report **RSRD_BROADCAST_BATCH** or **RSRD_BROADCAST_STARTER** can be used for testing or debugging e.g. in combination with the precalculation server in console mode
3. You don't want to restart all failed settings at once like this is done by the standard report **RSR_PREC_SETTINGS_RESTART**. You prefer to restart some settings, wait for some time and then restart more settings until all settings are processed. This can be realized by a z-report which reads the entries in table **RSR_PREC_SETT** and submits report **RSRD_BROADCAST_BATCH** to schedule failed broadcasting settings.

Variables, personalization and variants

Using Exit-Variables

Usually, variable values are defined in the variable / variant section of the broadcasting setting. Please note that if input-ready-user-exit variables are used the system stores the variable values in the setting at the time of the setting creation. This means that if you have an input ready exit variable which determines a changing value over time (e.g. a date or a fiscal period) this variable value is stored in the setting as fixed value. During precalculation, the variable exit is executed but the current variable value is overwritten with the stored value from the setting.

For exit variables which change over time, non-input ready variables can be used as well. In this case, no variable value is stored in the variable section of the setting. So the new variable value is computed in the exit implementation and used in the precalculation.

Personalization

For personalized variables the same principle for storing the variable values in the setting is valid as for exit-variables. The variable value at the creation time of the setting is stored in the setting and used during precalculation. If the value of personalization changes over time the setting needs to be updated manually. In general it is better to use non-input ready exit-variables instead of personalized variables.

Variants

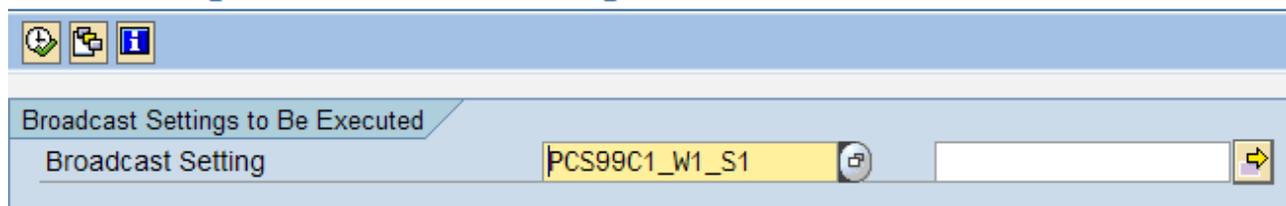
Variants can be defined in the BEx Analyzer workbooks and can be used in the broadcasting setting. Defining Variants in a setting is not possible. Please note that you can only use variants which are not flagged as user variant.

Using process chains to start precalculation

In addition to the usual way of starting precalculation settings by triggering "Event data changed (for Broadcaster)", it is possible to start them using report RSRD_BROADCAST_BATCH. This technique allows to include precalculation in a process chain. As shown below a process chain is created which executes this report via a variant.

First the variants for report RSRD_BROADCAST_BATCH needs to be created. Therefore start transaction SE38 and execute the report. Select the precalculation setting and save this screen as variant. In this example we save it as variant PCS99C1_W1_S1. The name of the variant can differ from the name of the setting.

Scheduling of Broadcast Settings



The next step is to include a process step in your process chain which executes an ABAP program. In the process step, choose the report RSRD_BROADCAST_BATCH and your variant in the process chain step. In our example, this is the previous defined variant PCS99C1_W1_S1.

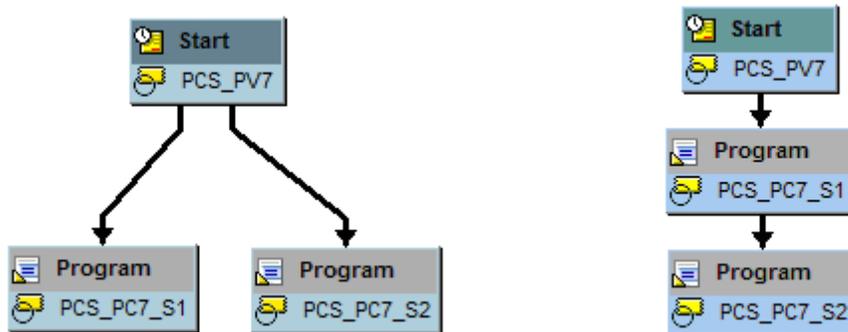
Process Maintenance: ABAP Program

Variant		PCS_PC7_S1	PCS_PC7_S1
Last Changed By	I030368	Changed On	20.10.2009 At 19:11:25

Call Mode	Called From
<input checked="" type="radio"/> Synchronous	<input checked="" type="radio"/> Local
<input type="radio"/> Asynchronous	<input type="radio"/> Destination

Program to Call					
<input checked="" type="radio"/> Program	<table border="1"> <tr> <td>Program Name</td> <td>RSRD_BROADCAST_BATCH</td> </tr> <tr> <td>Program Variant</td> <td>PCS99C1_W1_S1</td> </tr> </table>	Program Name	RSRD_BROADCAST_BATCH	Program Variant	PCS99C1_W1_S1
Program Name	RSRD_BROADCAST_BATCH				
Program Variant	PCS99C1_W1_S1				
<input type="radio"/> Scheduled Program	<table border="1"> <tr> <td>Event</td> <td></td> </tr> <tr> <td>Parameters</td> <td></td> </tr> </table>	Event		Parameters	
Event					
Parameters					

Finally the process chain is ready to execute a precalculation setting. The example chains below trigger the execution of two broadcasting settings in parallel. The design of the process chains in the example below differs but the effect is more or less the same. The reason is that the process chain only controls the execution of the program RSRD_BROADCAST_BATCH. The program creates new precalculation jobs in the background which are executed via the normal job scheduling mechanism. RSRD_BROADCAST_BATCH finishes as soon as new precalculation jobs are created and the process chain can proceed with the next item. The execution of these new precalculation jobs is monitored by the job scheduler and not monitored by the process chain. So the first process chain in the example below creates the new precalculation jobs in parallel. The second example creates the precalculation jobs in sequential order. But the real execution of the precalculation jobs is controlled by the job scheduler and thus can happen in any order or in parallel.



The right process chain pretends to execute the setting in sequential order. As explained above a sequential execution using this approach is not possible. A behavior which fakes a sequential execution could be achieved by adding an additional wait-step in between step PCS_PC7_S1 and PCS_PC7_S2. This could be modeled e.g. by adding a process chain step which calls a simple Z-report that waits for a given time frame using the ABAP statement WAIT UP TO XX SECONDS. A better solution is writing an Z-report which reads the process chain information and uses this information to identify the precalculation job. Then the report checks the status of the job periodically and waits until the job has the status finished or failed. This report is not part of this document.

Load balancing in “SAP BW Precalculation Service Multi Instance”

Load balancing in BW 7.X has been modified compared to the old version. In the old load balancing scheme only one precalculation server was allowed for one Windows server. The system internally queues precalculation requests and executes them in several threads within one process. Problems arose when there was an error in one thread. In some cases, all other threads failed also. To avoid this issue the load balancing mechanism design has been enhanced. Every precalculation server instance has its own process and RFC connection now. Problems with a process or RFC connection only affect one precalculation server. Setting the parameter `BWPREC_USE_NEW_LOAD` to X in table RSADMIN is required. For more information please refer to notes 1275837 and 1275828.

To support load balancing using “SAP BW Precalculation Server Multi Instance”, the system needs more than one active precalculation server (see transaction RSPRECADMIN). One precalculation server corresponds to one instance running on the windows server. Each precalculation server can process one precalculation request at a time. If for example, three precalculation servers are maintained in RSPRECADMIN they can all run on one Windows server in parallel. SAP recommends using up to three precalculation servers on a single Windows server.

In general, load balancing is implemented according to the following scheme: The system takes a look at the active precalculation servers. The list is sorted (by the technical logical name) and the system takes the first free active precalculation server from the top of the list. The next precalculation request is processed by looking for the first free active precalculation server from the end of the list. The next precalculation request checks for the first available server from the top again, and so on. This means, if a special precalculation task should be assigned to a hard coded precalculation server, it is recommended choosing a precalculation server from the middle of the list. This minimizes the probability of selecting a busy precalculation server.

Internally, the system tries to find a free precalculation server in three stages. The first stage was described above. In the second stage the system tries to get any free server for approx. one minute. If this fails and the system is in batch mode the third stage is launched in which the system tries for at least another 15 minutes to get a free server. If this fails an error is raised and stored in the log files.

Check e-mail sending

Please consult note 455140 "Configuration of e-mail, fax, paging or SMS using SMTP" if the configuration is set up correctly. Use transaction SCOT to check which mail server is set up or to start the send process manually.

SAPconnect: Administration (system status)

Start of evaluation time: 05.10.2009 00:00

	Completed	Error	In transit	Waiting	Duration In transit	Duration Waiting
					∅ hh:mm	∅ hh:mm
099(000)	0	1	29	14		
FAX	0	0	0	0	0:00	0:00
INT	0	0	29	0	0:00	0:00
SMTP	0	0	29	0	0:00	0:00
X40	0	0	0	0	0:00	0:00
RML	0	1	0	14	0:00	0:00
W/o nodes	0	1	0	0	0:00	0:00
PAG	0	0	0	0	0:00	0:00
PRT	0	0	0	0	0:00	0:00

Use transaction SOST to check if emails have been send

SAPconnect: Transmission Requests from 27.09.2009 to 29.10.2009

Refresh

Period Send status Sender Options

Send date: 27.09.2009 to 29.10.2009
 Sent at: 00:00:00 to 00:00:00
 Maximum No. of Hits: 500

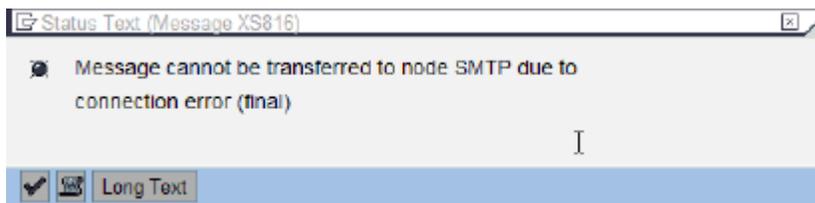
Execute Close

Trace

Send Requests (Waiting, Sent and Incorrect)

Status	Send Method	Doc. Title	Sender	Recipient	Send date	Send time	Msg
✖	via Internet	PCS WB1 SET1	██████████	██████████	01.10.2009	15:54:36	816
✖	via Internet	PCS WB1 SET1	██████████	██████████	01.10.2009	15:49:32	816
✖	via Internet	PCS WB1 SET1	██████████	██████████	01.10.2009	15:48:29	816

A double click on the message number at the end of the line (field "Msg") will open the error message window. There you can read the error message.



Related Content

Notes

[Precalc Server: restart failed Excel broadcasting settings](#)

[Precalc Server: specify timeout for workbook precalculation](#)

[BI 7.X Precalculation - Pre-requisites](#)

[PrecServer: process based load distribution \(ABAP part\)](#)

[PrecServer: process based load distribution \(Frontend part\)](#)

[BI 7.X Precalculation - General Information & Limitations](#)

[Using the precalculation server in NW 7.0](#)

[Interval variables in broadcasting settings](#)

[BI 7.X PreCalculation service delivery schedule](#)

[Error in the precalculation server \(read long text first\) /](#)

[Limitation: Precalculation Server and Workbooks in BDS](#)

[Pre-Requirement for BI Precalculation service 710](#)

[Prerequisite for BI 7.x and BW 3.x Frontend \(BEx Tools\)](#)

[Precalculation server help for troubleshooting](#)

[Configuration of e-mail, fax, paging or SMS using SMTP](#)

Miscellaneous

How to paper for BW 3.X

[How to troubleshoot Information Broadcasting \(BExWorkbooks\)](#)

SDN Article

[Use Case: Workbook Pre calculation and Broadcasting](#)

Wiki of the broadcasting precalculation in SAP Developer Network

<http://wiki.sdn.sap.com/wiki/display/BI/Wiki+home+of+the+Broadcasting+precalculation>

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